BULLETIN
OF THE
CHEMICAL SOCIETY
OF JAPAN

Volume 44

1971

Saburo NAGAKURA, Editor
KOZO NAGASHIMA, Assistant Editor
Editorial Board

Hideo AKAIWA	Hideo YAMATERA	Manabu SENŌ	Kunihiko MIZUMACHI
Yoshiya KANDA	Masayuki YOSHIDA	Isao TOMITA	Hitosi NOZAKI
Haruo KURODA	Mitsuomi ITO	Hiroshi YAMAZAKI	Tadamasa SHIDA
Kenichi MORINAGA	Masayoshi KINOSHITA	Juji YOSHIMURA	Ryokichi TSUCHIYA
Shin SATO	Hirotoshi SANO	Hiroshi KAKISAWA	Tatsuya YASUNAGA
Isao SUZUKI	Yutaka NAGAI	Hiroshi KOKUBUN	

Published by

The Chemical Society of Japan

5, 1-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

© 1971 by The Chemical Society of Japan

CONTENTS OF VOLUME 44, 1971

No. 1

General and Physical

The Crystal Structure of Quinolinium 2-Dicyanomethylene-1,1,3,3-tetracyanopropanediide, $[2(C_9NH_8)^+ \cdot (C_{10}N_6)^{2-}]$ ..... S. Sakanoue, N. Yasuoka, N. Kasai, and M. Kakudo 1

Polarized Absorption Spectra of Single Crystals of Ion Radical Salts. II. K(TCNQ) and $Cs_2(TCNQ)_3$ ..... S. Hiroma, H. Kuroda, and H. Akamatu 9

Sound Velocity in Aqueous Solutions of Lead Nitrate and Ammonium Iodide ..... O. Nomoto and H. Endo 16

Structure of Polynucleotide Complex with Non-Complementary Nucleosides. II. Poly I,U + Poly C ..... H. Akutsu and M. Tsuboi 20

Electronic Structure of Lone Pairs. III. H_2S_2, H_2O_2, N_2H_4, and Diimides ..... H. Yamabe, H. Kato, and T. Yonezawa 22

The Crystal and Molecular Structure of *N*-Salicylidene-α-aminoisobutyratoaquocopper(II) ..... H. Fujimaki, I. Oonishi, F. Muto, A. Nakahara, and Y. Komiyama 28

Infrared Absorption Spectra of Silica Gel-$H_2{}^{16}O$, $D_2{}^{16}O$, and $H_2{}^{18}O$ Systems ..... M. Hino and T. Sato 33

Studies on the Electronic Spectra of the Semiquinones of Anthracene and Its Related Heterocycles. II ..... H. Masuhara, M. Okuda, and M. Koizumi 38

Modified INDO Calculations of the Electronic Structure of Organic Molecules. I. Electronic Excitation Energies of Some Carbonyl Compounds and Conjugated Dienes ..... K. Yamaguchi and T. Fueno 43

The Infrared Spectra of Metallooctaethylporphyrins ..... H. Ogoshi, N. Masai, Z. Yoshida, J. Takemoto, and K. Nakamoto 49

Solvent Effects on the Spin-Lattice Relaxation Times and Chemical Shifts of *N*-Methylacetamide and *N,N*-Dimethylacetamide ..... K. Sato and A. Nishioka 52

The Crystal and Molecular Structures of a 3 : 2 Adduct of Acetylene and Isonitrile Derivatives ..... Y. Suzuki and Y. Iitaka 56

Studies on Cobaloxime Compounds. I. Synthesis of Various Cobaloximes and Investigation on Their Infrared and Far-Infrared Spectra ..... N. Yamazaki and Y. Hohokabe 63

Studies of Organic Peroxides. XI. The Reaction of Benzoyl Peroxide with Secondary Amines in Binary Mixed Solvents ..... S. Hasegawa, S. Kashino, and Y. Mukahi 69

Structure and Intramolecular Motions in Triethylenediamine as Studied by Gas Electron Diffraction ..... A. Yokozeki and K. Kuchitsu 72

Calorimetric Study of the Glassy State. VI. Phase Changes in Crystalline and Glassy-Crystalline 2,3-Dimethylbutane ..... K. Adachi, H. Suga, and S. Seki 78

Normal Coordinate Treatment and Force Constants of Alkanonitriles ..... T. Fujiyama 89

Dissociation Constants of the Oxalato-Titanium(III) Complex as Determined from Spectrophotometric Measurements ..... K. Pan, C. C. Lai, and T.-S. Huang 93

Average Values of Bond Angles ..... K. Kuchitsu 96

A Remark on the Dipole Moment of Cyclohexane-1,4-dione in Relation to Its Flexible Molecular Conformation ..... A. Aihara and C. Kitazawa 99

Notes:

The Dipole Moment of the Trimethylamine-iodine Complex ..... H. Mihono and K. Toyoda 272

An ESR Study of Radicals Produced in γ-Irradiated Allyl Alcohol Glass and Their Photochemical Reaction at 77°K ..... S. Noda, K. Torimoto, K. Fueki, and Z. Kuri 273

Anion Radicals Produced by the Non-aqueous Polarographic Reduction of Several Benzonitrile *N*-Oxides ..... H. Miyazaki, K. Nishikida, and T. Kubota 277

Non-aqueous Polarographic Behavior of the Anion Radical Itself of 4-Nitropyridine *N*-Oxide ..... H. Miyazaki and T. Kubota 279

Electronic Spectra of Amino-substituted Pteridines ..... M. Kamiya 285

Analytical and Inorganic

On the Growth Rate of Selenium Spherulite ..... S. Hamada 104

Purity Determination of Organic Compounds by Time-temperature Freezing or Melting Curves with a Simplified Apparatus ..... H. Enokido, T. Shinoda, and Y. Mashiko 108

The Reactions of Dihalogenoalkanes with Dimethyltin Bis(*N*,*N*-dimethyldithiocarbamate) and Related Compounds ..... T. Tanaka, K. Tanaka, and T. Yoshimitsu 112

Extraction and Spectrophotometric Determination of Copper(II) with 2-Thenoyltrifluoroacetone ..... H. Akaiwa, H. Kawamoto, and M. Abe 117

Kinetics and Mechanism of Aquation and Anation of Some Amino Acid Pentamminecobalt(III) Complexes in Acid Aqueous Solutions ..... T. Murakami, K. Ogino, H. Kobayashi, H. Yamazaki, and K. Saito 120

Note:

Distribution of Aqueous Sodium Perchlorate into Some Polar Organic Solvents ..... Y. Hasegawa, T. Ishii, and T. Sekine 275

Organic and Biological

The Reactions of Aroyl Peroxides with Grignard Reagents. II. Relative Reactivities of Substituted Benzoyl Peroxides ..... M. Ōkubo, K. Maruyama, and J. Ōsugi 125

The Thermal Isomerization of Pinane and Its Products ..... J. Tanaka, T. Katagiri, and K. Ozawa 130

Side-chain Nitrooxylation of Polyalkylbenzenes through Ionic Process ..... K. Nakamura 133

A Modification of Red Blood Cells by Isocyanates ..... M. Kitajima, W. Sekiguchi, and A. Kondo 139

Studies of Peptide Antibiotics. XXIII. Syntheses of Linear Decapeptide Analogs with Gramicidin S Sequence ..... S. Makisumi, M. Waki, and N. Izumiya 143

Studies on *s*-Triazines. VII. A New Method of Preparing 2-Methyl-4,6-bis(trichloromethyl)-*s*-triazine ..... K. Wakabayashi, M. Tsunoda, and Y. Suzuki 148

Studies of Seven-Membered Heterocyclic Compounds Containing Nitrogen. X. Syntheses of 5,6,8,9-Tetrahydro-7*H*-pyrimido[4,5-*d*]azepines ..... H. Yamamoto, M. Nakata, S. Morosawa, and A. Yokoo 153

Studies of Peptide Antibiotics. XXIV. Synthesis of 4,4′-D-Alanine-gramicidin S ..... S. Lee, R. Ohkawa, and N. Izumiya 158

The Reactions of α-Substituted Carbonyl-stabilized Sulfonium Ylides with Succinic Anhydride ..... T. Mukaiyama, K. Hagio, H. Takei, and K. Saigo 161

Hydrogenation and Hydrogenolysis. XIII. The Hydrogenation of Ethyl 4-Methyl-1-cyclohexenyl Ether over Platinum Metal Catalysts ..... S. Nishimura, M. Katagiri, T. Watanabe, and M. Uramoto 166

Cyclic Acetylenes. XI. The Syntheses of *p*,*p*′-Bridged Cyclic Tolans by the Fritsch-Buttenberg-Wiechell Rearrangement ..... T. Ando and M. Nakagawa 172

Cyclic Acetylenes. XII. The Syntheses of *o*,*p*′-Bridged Cyclic Tolans by the Fritsch-Buttenberg-Wiechell Rearrangement ..... M. Kataoka, T. Ando, and M. Nakagawa 177

Studies on Heteroaromaticity. XLIV. Reactivities of Benzoyl Cyanide *N*-Oxide and Some Derivatives Therefrom ..... T. Sasaki, T. Yoshioka, and Y. Suzuki 185

Reactions of Sulfonium and Pyridinium Salts with Alkyl Nitrite ..... T. Mukaiyama, K. Saigo, and H. Takei 190

The Preparation of 4′,6′-Di- and 2′,4′,6′-Tri-*O*-acetates of Theophylline Nucleosides of 3′-Deoxy-3′-nitro-β-D-galacto-, gluco- and mannopyranose ..... T. Nakagawa and T. Takamoto 192

Phosphorylation of Alcohols and Phosphates by Oxidation-Reduction Condensation ..... T. Mukaiyama and M. Hashimoto 196

Macro Rings. III. The Synthesis of [2.1.1.1]Paracyclophane ..... T. Kawato, T. Inazu, and T. Yoshino 200

Stereochemical Studies of Monoterpene Compounds. X. Intramolecular Interaction of Oxirane and Cyclopropane Rings with a Hydroxyl Group ..... S. Watanabe, T. Suga, T. Shishibori, and T. Matsuura 204

Ferrocene Polymers Obtained by the Polycondensation of Ferrocene with Dicarboxylic Acid Chlorides ..... T. Asahara, M. Senō, K. Mitsuhashi, and Y. Ichikawa 207

Studies of Peptide Antibiotics. XXV. Synthesis of an Immediate Precursor of Gramicidin S ..... S. Makisumi, S. Matsuura, M. Waki, and N. Izumiya 210

Organic Photochemical Reactions. XIV. The Photocycloaddition of Acetone to Cyclooctene and 1,3-Cyclooctadiene ..... K. Shima, Y. Sakai, and H. Sakurai 215

The Nitrosation of β-Keto Sulfoxides ..... Y. Otsuji, Y. Tsujii, A. Yoshida, and E. Imoto 219

The Preparation and Reactions of Benzoylnitrile Oxide from Dimethylphenacylsulfonium Bromide ..... Y. Otsuji, Y. Tsujii, A. Yoshida, and E. Imoto 223

Nitration of Pentamethylnitrobenzene, Pentamethylbenzoic Acid and Its Methyl Ester, Pentamethylacetanilide, and Pentamethylphenol and Its Methyl Ether. Orienting Effect of the Substituents for the Side-chain Nitroxylation ..... H. Suzuki and K. Nakamura 227

A New Phosphorylating Reagent. III. Preparation of Mixed Diesters of Phosphoric Acid by the Use of an Activatable Protecting Group ..... Y. Mushika, T. Hata, and T. Mukaiyama 232

Synthesis and Elimination Reaction of *O*-Methyl Derivatives of Methyl(Methyl-α-D-Glucopyranosido)uronate ..... H. Hashimoto, T. Sekiyama, H. Sakai, and J. Yoshimura 235

The Ruthenium-Catalyzed Hydrogenation of Aromatic Amines Promoted by Lithium Hydroxide ..... S. Nishimura, Y. Kono, Y. Otsuki, and Y. Fukaya 240

Cyclopropenones. IV. The Reactions of Diphenylcyclopropenone with Water, Carboxylic Acid, Phenol, and Amide ..... F. Toda, T. Kataoka, and K. Akagi 244

Reactions of Metal Alkyl - Active Methylene Chelate Compounds with α,β-Unsaturated Carbonyl Compounds ..... Y. Kawakami and T. Tsuruta 247

The Preparation of Fukinane, A New Skeletal Sesquiterpenic Hydrocarbon ..... K. Naya and M. Kobayashi 258

Effects of *para*-Substituents on the Rates of Inversion of Biphenyl Derivatives. I. 5,7-Dihydrodibenzo[*c*,*e*]thiepins ..... M. Ōki, H. Iwamura, and G. Yamamoto 262

Effects of *para*-Substituents on the Rates of Inversion of Biphenyl Derivatives. II. 2-Isopropyl-2′-methoxybiphenyls ..... M. Ōki and G. Yamamoto 266

Notes:

Studies of the *N*-Oxides of *N*,*N*-Dialkylamino Acids. IV. The Decarboxylation of *N*,*N*-Dimethylamino Acid *N*-Oxides with *p*-Toluenesulfonyl Chloride in Pyridine ..... Y. Ikutani 271

Direct and Sensitized Photoreactions of Allyl Phenyl Ether ..... N. Shimamura and A. Sugimori 281

Asymmetric Reactions. V. Homogeneous Hydrogenation of Unsaturated Compounds Catalyzed by Bis(dimethylglyoximato)cobalt(II) ..... Y. Ohgo, S. Takeuchi, and J. Yoshimura 283

The Resolution of *t*-Butyloxycarbonyl-DL-α-phenylsarcosine ..... H. Kinoshita, M. Shintani, T. Saito, and H. Kotake 286

Hydrogenation of Acid Anhydrides with Cobalt Carbonyl Catalyst ..... H. Wakamatsu, J. Furukawa, and N. Yamakami 288

Short Communications

The Synthesis of 2′,3′,4,4′,6′-Pentahydroxychalcone ..... H. Obara, J. Onodera, and Y. Kurihara 289

Isopiestic Studies of Non-aqueous Solutions of Quaternary Ammonium Halides. Comparison of the Degree of Solvations in Methanol and in Acetonitrile ..... T. Matsui, F. Yamaue, and N. Tokura 290

Direct Observation of Catalytic Activity Change in Nickel Metal Deformed in Torsion During Reaction ..... E. Miyazaki, T. Fukushima, K. Kawasaki, and K. Nakada 291

Synthetic Studies of Carbohydrate Derivatives with Photochemical Reaction. II. Photochemistry of Benzylidene Sugar Derivatives ..... K. Matsuura, S. Maeda, Y. Araki, and Y. Ishido 292

The Oxyhydration of Olefin over Transition Metal Oxide Catalysts ..... Y. Moro-oka, Y. Takita, and A. Ozaki 293

Separation of Semi-Xylenol Orange from Xylenol Orange by Thin-Layer Chromatography with Solvents Giving Stepwise pH Change on the Plate ..... M. Yamada and M. Fujimoto 294

Charge-Transfer Interaction between *N*,*N*,*N*′,*N*′-Tetramethyl-*p*-phenylenediamine and Chloranil ..... T. Nogami, K. Yoshihara, and S. Nagakura 295

Electrophilic Substitutions on 8-Cyanoheptafulvene ..... M. Oda and Y. Kitahara 296

Four New Flavonoids Isolated from *Alnus sieboldiana* ..... Y. Asakawa, F. Genjida, and T. Suga 297

Molecular Complex between the Cation Radicals of Perylene and Tetracene ..... T. Yamazaki and K. Kimura 298

On the Structure of *Trans* Ethyl Methyl Ether and the W Form of Diethyl Ether ..... M. Hayashi, H. Imaishi, K. Ohno, and H. Murata 299

The Methylation of the Mercuric Ion by Methylcobaloximes ..... J.-Y. Kim, N. Imura, T. Ukita, and T. Kwan 300

Effect of Phase on the Primary Process of the Formation of Butyl Radicals in the Radiolysis of Solid Isobutane-2-d_1 ..... Y. Saitake, T. Wakayama, T. Kimura, T. Miyazaki, K. Fueki, and Z. Kuri 301

The Reduction of Enamines and the Reductive Alkylation of *sec*-Amines with Potassium Hydridotetracarbonylferrate ..... T. Mitsudo, Y. Watanabe, M. Tanaka, K. Yamamoto, and Y. Takegami 302

Anomalous Products Obtained by Nitration of Some Polyalkylnaphthalenes ..... H. Suzuki and K. Nakamura 303

Photosensitized Electrolytic Oxidation of Iodide Ions on Cadmium Sulfide Single Crystal Electrode ..... A. Fujishima, E. Sugiyama, and K. Honda 304

No. 2

General and Physical

The Separation of Copper Isotopes by Ion-exchange Chromatography.....T. KANZAKI and H. KAKIHANA 305

Group Interactions in Polyelectrolytes. IV. Kinetics of the Alkaline Hydrolysis of Polymethyl Acrylate (Part II) .....H. KAWABE and M. YANAGITA 310

The N–H Stretching Absorption Band Intensities in Secondary Amides, Secondary Thioamides, and Anilides ..... P. U. BAI and K. V. RAMIAH 313

Infrared Spectra and Normal Vibrations of *N*,*N*-Dimethylformamide and *N*,*N*-Dimethylthioformamide ..... G. DURGAPRASAD, D. N. SATHYANARAYANA, and C. C. PATEL 316

Dielectric Relaxation of 1,2-Dichloroethane and 1,2-Dibromoethane in the Liquid State .....A. HASAN, A. PAL, and A. GHATAK 322

The Hydrogenation of Aniline over Supported Rhodium-Palladium Alloy Catalysts ..... K. IKEDATE and S. SUZUKI 325

A Nuclear Magnetic Relaxation of ^{139}La in Ionic Aqueous Solutions....K. NAKAMURA and K. KAWAMURA 330

Four Radical Species Produced Photochemically in the Solid Mixture of Acridine and Acridan .....S. NIIZUMA, H. KOKUBUN, and M. KOIZUMI 335

Mechanistic Studies on the Photochemical Oxidation of Phenothiazine with Oxygen in Ethanol ..... T. IWAOKA, H. KOKUBUN, and M. KOIZUMI 341

The Electronic Structure of Zeise's Salt, $[PtCl_3C_2H_4]^-$.....H. KATO 348

ESR and Optical Studies on the EDA Complexes of Di-*t*-butyl-*N*-oxide Radical ..... Y. MURATA and N. MATAGA 354

Diffuse Reflection Spectra of Filter Papers Dyed with 1-Arylazo-2-naphthols .....Y. MATSUNAGA and N. MIYAJIMA 361

Infrared Absorption Spectra and Normal Coordinate Analysis of Metal-DL-α-Serine Chelates..... Y. INOMATA, T. INOMATA, and T. MORIWAKI 365

Low Frequency Infrared Absorption Bands of Water of Crystallization at Low Temperature.....K. FUKUSHIMA 372

The Recombination of Iodine Atoms Generated by a C. W. Argon Ion Laser ..... N. HARADA, Y. MORI, and I. TANAKA 375

Charge Transfer Interaction and Chemical Reaction. III. Reactions of *m*-Phenylenediamine and Related Compounds with Chloranil .....T. NOGAMI, T. YAMAOKA, K. YOSHIHARA, and S. NAGAKURA 380

Molecular Structure of Diacetylene as Studies by Gas Electron Diffraction..... M. TANIMOTO, K. KUCHITSU, and Y. MORINO 386

Inclusion Compounds of Some Charge-Transfer Complexes ..... M. OHMASA, M. KINOSHITA, and H. AKAMATU 391

Electronic Properties of Benzidine-TCNQ System .....M. OHMASA, M. KINOSHITA, and H. AKAMATU 395

NOTES:

Simple Relationship between Entropy Change upon Fusion or Sublimation at Melting Point, Electronic Polarizability and the Interatomic Distance for Alkali Halides.....H. KANNO 559

The Dipole Moment of Halogenobenzotropones .....T. SHIMOZAWA, S. KUMAKURA, M. HOSHINO, and S. EBINE 565

The Photolysis of 1,3-Cyclooctadiene Vapor. Vibrationally Excited Molecules Produced by the Photoelimination of Ethylene.....S. TAKAMUKU and H. SAKURAI 569

The γ-Radiolysis and Mercury-Photosensitized Decomposition of Ethylbenzen Vapor ..... Y. YAMAMOTO, S. TAKAMUKU, and H. SAKURAI 574

Analytical and Inorganic

Paper Electrophoresis and Polarography of the Reaction Product between the Chromium(III) Ion and Potassium Hexacyanoferrate(II) .....M. SHIRAI 400

Distribution of Nickel across the Thickness of Al Anodic Oxide Films Sealed in Nickel Sulphate Solutions ..... L. CAMPANELLA 404

N-Benzenesulphonyl β-Alanine as a Masking Agent for Hg(II) .... N. N. GHOSH and A. BHATTACHARYYA 407

Transition-metal Complexes of Pyrrole Pigments. III. Copper(II) and Zinc(II) Complexes of 1,19-Dideoxy-8,12-dicarbethoxy-1,3,7,13,17,19-hexamethylbiladiene-ac .....Y. MURAKAMI, Y. MATSUDA, and Y. KANAOKA 409

Chloropentakis(trichlorostannato)ruthenate(II)....H. OKUNO, T. ISHIMORI, K. MIZUMACHI, and H. IHOCHI 415

The Formation of κ- and κ'-Al_2O_3 from the Dehydration of Tohdite $5Al_2O_3 \cdot H_2O$ ..... M. Okumiya, G. Yamaguchi, O. Yamada, and S. Ono 418

The Effect of Consecutive Complex Formation on the Separation of Rare Earths by Electromigration .... E. Ohyoshi 423

Circular Dichroism of Mixed Biguanide Ethylenediamine Cobalt(III) Complexes ..... K. Igi, T. Yasui, J. Hidaka, and Y. Shimura 426

The Characterization of $CdFe(CO)_4$ and $HgFe(CO)_4$ by Infrared and Mössbauer Spectroscopy and X-Ray Diffractometry..... T. Takano and Y. Sasaki 431

The Syntheses and Properties of Some 2,4-Dimethyl-1,5-benzodiazepinium Halogenometalates ..... A. Ouchi, T. Takeuchi, M. Nakatani, and Y. Takahashi 434

Note:

Spectrophotometric Determination of Iodide Ions by Solvent Extraction with Neutral Red ..... M. Tsubouchi 554

Organic and Biological

The Dehydration of *N*-Benzyloxy and *N*-Hydroxymaleamic Acid and the Isomerization of *N*-Benzyloxyisomaleimide..... M. Narita, M. Akiyama, and M. Okawara 437

The Reaction of Azoxybenzene with Acetic Anhydride..... S. Oae, T. Maeda, and S. Kozuka 442

The Tracer Study of the Reaction of Diphenyl Sulfone-1-^{14}C with Elemental Sulfur Using a Convenient Degradative Method ..... S. Oae, M. Nakai, Y. Tsuchida, and N. Furukawa 445

The Mechanism of Silver Perchlorate Catalyzed Solvolysis Reaction of 2-Chlorocyclohexanone-1-^{14}C ..... T. Masuike, N. Furukawa, and S. Oae 448

Tracer Study of the Reactions of Diphenyl Sulfone and Diphenyl Sulfoxide with Diphenyl Disulfide ..... S. Oae, Y. Tsuchida, and M. Nakai 451

Study of Acidity Constants of 3-, 4-, 5-, and 6-Chloro-*o*-toluidinium Ions in Aqueous Solution and Related Thermodynamic Quantities. I. ..... A. H. Gandhi and S. R. Patel 455

Studies of Phosphorylation. V. The Synthesis of Inosine-5'-thiophosphates..... K. Haga, M. Kainosho, and M. Yoshikawa 460

Thermal and Photolytic Decompositions of Azobis(2-phenylthio)-2-propane..... A. Ohno, N. Kito, and Y. Ohnishi 463

Thermal and Photolytic Decompositions of Azobis(2-phenoxy)-2-propane..... A. Ohno, N. Kito, and Y. Ohnishi 467

Studies on Electron Spin Resonance Spectra of 2-Substituted Prop-2-yl Radicals ..... A. Ohno, N. Kito, and Y. Ohnishi 470

The Reaction of α-Oxo Acids with *N*-Phenyltriphenylphosphinimine..... C. Shin, H. Ando, and J. Yoshimura 474

Studies on Seven-Membered Heterocyclic Compounds Containing Nitrogen. XI. The Schmidt Reaction of 1-Benzyl-1-azacycloheptan-4-one, Menthone, and 2-Methyl-4,5,6,7-tetrahydrobenzo[*b*]thiazol-7-one .. Y. Sakakida, A. S. Kumanireng, H. Kawamoto, and A. Yokoo 478

Studies on Microbial Utilization of Petroleum. I. Separation and Characterization of Carotenoids Produced by a Species of *Brevibacterium* in Hydrocarbon Media ..... H. Sakurai, K. Kato, T. Sakai, Y. Masuda, and T. Kuriyama 481

Optical Rotatory Dispersion and Circular Dichroism of the Osmate Esters of Cyclic Mono-Olefins ..... N. Sakota and S. Tanaka 485

Studies of the Synthesis of Furan Compounds. XXII. Synthesis and Antibacterial Activity of 5-[2-(5-Nitro-2-furyl)-1-(2-furyl)vinyl]-2-amino-1,3,4-thiadiazole and Its Related Compounds ..... Y. Kato 489

Optical Activity of Bis-1,1'-spiroindanes. I. Optical Resolution and Absolute Configuration ..... S. Hagishita, K. Kuriyama, M. Hayashi, Y. Nakano, K. Shingu, and M. Nakagawa 496

Studies of Compounds Related to Azines. VII. The Pyrolysis of 2-Acetylthiophene- and 2-Acetylfuranketazine ..... O. Tsuge, H. Watanabe, and K. Hokama 505

Stoichiometric Carbonylation of Aryl Halide with Nickel Tetracarbonyl in the Presence of Potassium Acetate ..... M. Nakayama and T. Mizoroki 508

Polarography of Halides in Dimethylformamide. VI. The Formation of the Benzhydryl Radical from Benzhydryl Bromide and Its Subsequent Reduction at the Dropping Mercury Electrode ..... Y. Matsui, T. Soga, and Y. Date 513

The Mechanism of the Reaction of Quinolines with Organolithium Compounds ..... Y. Otsuji, K. Yutani, and E. Imoto 520

Rotatory Dispersion and Stereochemistry of Organic Compounds. XVI. Carbonylphenyl Glucosides ..... Y. Tsuzuki, S. Kataoka, M. Funayama, and K. Satsumabayashi 526

The Formation of Triaryl-*s*-triazine in the Chemiluminescence Reaction of Triarylimidazole and in the Photo-oxygenation of Triarylimidazole in the Presence of Ammonia ..... K. Maeda and T. Hayashi 533

The Cationic Polymerization of Methallyl Vinyl Ether..H. Yuki, K. Hatada, T. Emura, and K. Nagata 537

Condensation Reactions of Sulfonylcarbanion ..... Y. Yamamoto, T. Nisimura, and H. Nozaki 541

Reaction of Aromatics with Thallic Salts—Preparation of Arylthallic Compounds ..... K. Ichikawa, S. Uemura, T. Nakano, and E. Uegaki 545

4-Acetylierung der 5-Hydroxy-indol-Derivate ..... T. Suehiro und M. Niitsu 550

Notes:

The Photoreaction of Dehydroacetic Acid ..... N. Sugiyama, T. Sato, H. Kataoka, and C. Kashima 555

Kinetics of the Reaction of Imidazole with Acrylonitrile by Using NMR .. F. Yamada and Y. Fujimoto 557

Conductometric Studies of the Reaction of Pyridine and 3-Picoline with Iodine in Methanol ..... J. P. Saxena, B. K. Joshi, and G. D. Menghani 561

Diels-Alder Reactions of Benzoquinone. I. Reactions of Methoxybenzoquinone with Styrene and *o*-Methylstyrene..... Y. Inouye and H. Kakisawa 563

Rearrangements in the Palladium-Catalyzed Dehydrogenation of Cyclohexylphenols to Phenylphenols..... H. Matsumura, K. Imafuku, I. Takano, and S. Matsuura 567

Abstraction of Methyl Hydrogen of Organosilicon Compounds by *t*-Butoxy Radicals ..... H. Sakurai, A. Hosomi, and M. Kumada 568

The Reaction of Bis(methoxycarbonyl)carbene with Allyl Chloride. "Solvent Effect" ..... W. Ando, S. Kondo, and T. Migita 571

The Syntheses of 5,5′-, 6,6′-, and 5,6′-Diformyl-2,2′,3,3′-tetramethoxybiphenyls ..... Y. Omote, Y. Fujinuma, and N. Sugiyama 572

Application of Proton NMR Shift Reagents to the Stereochemical Analysis of Nicotine ..... M. Ohashi, I. Morishima, and T. Yonezawa 576

Aromatic Substitution of Olefins. XV. The Steric Course of the Reaction ..... I. Moritani, S. Danno, Y. Fujiwara, and S. Teranishi 578

Short Communications

The Effect of the Krypton Moderator on the Isomeric Transition-induced Reactions of ^{80}Br with CH_4 .... M. Yagi, K. Kondo, and T. Kobayashi 580

Arylation of Olefin with Aryl Iodide Catalyzed by Palladium .... T. Mizoroki, K. Mori, and A. Ozaki 581

Diiodo-π-cyclopentadienyliridium and Its Derivatives ..... H. Yamazaki 582

Asymmetric Hydrogenation Catalyzed by Bis(dimethylglyoximato)cobalt(II) - Optically Active Amine Complex ..... Y. Ohgo, S. Takeuchi, and J. Yoshimura 583

Hydrolysis of *p*-Nitrophenyl(deoxyguanylyldeoxyguanosine Succinate) by Deoxyguanylyldeoxyguanosine *N*-Acetylhistidate on Polycytidylic Acid ..... T. Shimidzu and R. L. Letsinger 584

Photochemical Reactions of Phenanthraquinone with Hydrogen Donors. An Investigation of the Reaction by CIDNP Method ..... K. Maruyama, H. Shindo, and T. Maruyama 585

The Crystal Structure of *cis*-Dichlorobis(2,2′-dipyridyl)cobalt(III) Tetrachlorocobaltate(II), *cis*-$[CoCl_2dip_2]_2$ $[Co\,Cl_4]$ ..... M. Hinamoto, S. Ooi, and H. Kuroya 586

No. 3

General and Physical

The X-Ray Emission Spectra of the Compounds of Third-period Elements. I. The *K* Spectra of Chlorine in Compounds ..... Y. Takahashi 587

The Chemisorption of Nitric Oxide and Nitrogen on Rhenium ..... T. Tamura 590

Inter and Intramolecular Charge and Excitation Transfer Observed in Irradiated Polyvinyl Chloride Particles with Surface-coated Additives ..... H. Ueda and D. Yashiro 595

The Electrodeposition of Aluminum from a Solution of Aluminum Bromide in *N,N*-Dimethyl Aniline ..... T. Hisano, T. Terazawa, I. Takeuchi, S. Inohara, and H. Ikeda 599

Electronic Structure of Lone Pairs. II. Disulfides and Acyl Thiol .... H. Yamabe, H. Kato, and T. Yonezawa 604

Electronic Structure of Lone Pairs. IV. The Transannular Interaction of Several Meso-cycles ..... H. Yamabe, H. Kato, and T. Yonezawa 611

The Optical Activity of Bis-1,1′-spiroindanes. The Direct Calculation of Optical Rotational Strengths ..... S. Hagishita and K. Kuriyama 617

On the Effects of Doubly Excited Configurations in Semi-Empirical Molecular Orbital Calculations on Non-Alternant Hydrocarbons ..... H. Kashiwagi 624

Electronic States of Diphenylamine and Its Related Compounds ..... T. Hinohara, S. Cho, and T. Morita 629

Studies on Salt Solution Aerosols. IV. Droplet Size Determination of Aqueous Sodium Chloride Solution Aerosols by Chemical Spot Method ..... Y. Ueno and I. Sano 637

Photosensitive Ionomer. I. Preparation of Mercurous Acrylate and Photosensitive Plates ..... S. Suzuki and K. Sugita 641

The Crystal Structure and Nonstoichiometry of Rare Earth Oxyfluoride ..... K. Niihara and S. Yajima 643

Intermolecular Forces and Rotational Phase Transition in the C_2H_2 Crystal ..... M. Hashimoto, M. Hashimoto, and T. Isobe 649

The Crystal and Molecular Structure of π-Cyclooctenyl-π-cycloocta-1,5-dienecobalt, $Co(C_8H_{13})(C_8H_{12})$ ..... S. Koda, A. Takenaka, and T. Watanabé 653

Emission Spectra Obtained by Low Energy Electron Bombardment of Methane and Chlorinated Methanes .... T. Ogawa, I. Fujita, M. Hatada, and K. Hirota 659

The Cation Radical Salts of Phenothiazine and Related Compounds ..... Y. Iida 663

The Primary Process of the Photochemical Dimerization of Carbostyril ..... T. Yamamuro, I. Tanaka, and N. Hata 667

Absorption Spectra of Crystals of Cytosine and Its Derivatives ..... M. Tanaka and J. Tanaka 672

The Effect of Pressure on the Electronic Absorption Spectra of Alkali Metal Cation-Chloranil and -Bromanil Anion Radical Salts, and the Dimerization of the Chloranil Anion Radical in Solution ..... N. Sakai, I. Shirotani, and S. Minomura 675

Spreadability of Ovalbumin Monolayers at Air-water Interface. Effects of Additives to Spreading Solutions .... T. Ishii and M. Muramatsu 679

Electronic Structures, Electronic Spectra, and Aromatic Characteristics of Peri-Condensed Tetracyclic Nonbenzenoid Aromatic Hydrocarbons Containing a Naphthalene Nucleus .... H. Yamaguchi and T. Nakajima 682

Notes:

Long Spacings of ω-Cyclohexyl Alkanoic Acids ..... A. Ishizawa 845

Long Spacings of ω-Cyclohexyl Alkanols ..... A. Ishizawa 846

Long Spacings of α,ω-Dicyclohexyl Alkanes and α,ω-Diphenyl Alkanes ..... A. Ishizawa, C. Funayama, and M. Kosaka 847

On the Ratio of A_N to $A_{H(NH)}$ for Some Phenyl Nitric Oxide Radicals ..... T. Nishikawa and K. Someno 851

A Spectroscopic Study on Hydrogen Bonding and Proton Transfer in Photo-Excited *p*-Hydroxybenzophenone .. A. Matsuyama and H. Baba 854

The Spatial Distribution of Secondary Electrons Produced in the γ-Radiolysis of Cyclohexane ..... S. Sato and T. Oka 856

Unperturbed Dimensions of Poly-*o*-chlorostyrene ..... K. Matsumura, K. Mizuno, M. Fukaya, T. Kamiya, and Y. Sato 863

Analytical and Inorganic

Studies of the Formation Mechanism of Sodium Tripolyphosphate from Orthophosphates by the Use of Radioisotopes ..... T. Iida, N. Takai, and T. Yamabe 686

Study of Hydration and Association of Ions in Solution. I. Chromatographic and Electrophoretic Behaviors of Hexamminetype Cobalt(III) Complexes in Aqueous Solutions of Various Electrolytes ..... H. Yoneda, M. Muto, T. Baba, and T. Miura 689

Rapid Extraction of Antimony with Tributyl Phosphate. Direct Photometric Determination with Brilliant Green ..... A. A. Yadav and S. M. Khopkar 693

A Polarographic Study of the Complex Formation Equilibria of the Lead(II) Ion with Aspartic and Iminodiacetic Acids ..... M. Kodama and S. Takahashi 697

Derivatographic Studies on Transition Metal Complexes. IV. Deaquation-Olation of Hydroxoaquo Cobalt(III) Complexes with Aminotricarboxylic Acids ..... R. Tsuchiya, A. Uehara, and E. Kyuno 701

Derivatographic Studies on Transition Metal Complexes. V. Thermal *cis*, *trans*-to-*trans*, *cis* Isomerization of $[CoCl_2(NH_3)_2en]ClO_4$ in Solid Phase ..... R. Tsuchiya, Y. Nakata, and E. Kyuno 705

Derivatographic Studies on Transition Metal Complexes. VI. Thermal, *cis*, *trans*-to-*cis*, *cis* Exchange-Isomerization of $[CoCl_2(NH_3)_2en]SCN \cdot H_2O$ in Solid Phase ..... R. Tsuchiya, M. Suzuki, and E. Kyuno 709

The Chemical Structures of Glasses of the $NaPO_3$-Sb_2O_3-Na_2O System ..... M. Watanabe, K. Tanabe, T. Takahara, and T. Yamada 712

Coexistence States of Iron in Synthesized Iron-bearing Allophane (Al_2O_3-SiO_2-Fe_2O_3-HO System) ..... J. Ossaka, S. Iwai, M. Kasai, T. Shirai, and S. Hamada 716

Synthesis of Iron-Titanium Oxides under Hydrothermal Conditions ..... K. Matsuoka 719

A Proton Magnetic Resonance Study of Cobalt(III) Complexes Containing 1,10-Phenanthroline and Ethylenediamine ..... H. Ito, J. Fujita, and T. Ito 723

^{119}Sn-Mössbauer and ^{1}H- and ^{55}Mn-NMR Spectroscopic Studies of a Series of Compounds, $R_{3-x}X_xSn$-$Mn(CO)_5$ ..... S. Onaka, Y. Sasaki, and H. Sano 726

Syntheses and Properties of Copper(II), Nickel(II), and Cobalt(II) Complexes of Alkylthioglycolic Acids ..... A. Ouchi, T. Takeuchi, and Y. Ohashi 731

The Determination of Tin in Tin Metal and in Zircaloy by Precise Coulometric Titration ..... T. Yoshimori, I. Matsubara, T. Tanaka, K. Yoshida, K. Tanaka, and T. Tanabe 734

Studies on Cobaloxime Compounds. II. Catalytic Activity of Cobaloximes in the Hydrogen Peroxide Decomposition Reaction ..... Y. Hohokabe and N. Yamazaki 738

The Preparation and the Structure of (1,9-Diamino-1,4,6,6,9-pentamethyl-3,7-diazanona-3-ene)(*l*-propylenediamine)nickel(II) Perchlorate ..... H. Ito and J. Fujita 741

Studies of the Interaction between the Picrate Ion and Alkali Metal Ions ..... M. Yamane, T. Iwachido, and K. Tôei 745

Notes:

Kinetic Studies of Lead Acetate Complex Formation in Aqueous Solutions ..... T. Yasunaga and S. Harada 848

Chemical Studies of Minerals Containing Rarer Elements from the Far East District. LXIV. Abukumalite from Fusamata, Kawamata-machi, Fukushima Prefecture, Japan ..... K. Nagashima, K. Nakao, H. Wakita, and A. Kato 867

Organic and Biological

The Synthesis of Nitro, Amino, and Acetamino Derivatives of 2,3-Dimethylbenzofuran ..... Y. Kawase, S. Takata, and E. Hikishima 749

Isomerization of Gomberg's Trityl by Protonic Acids in Benzene ..... H. Takeuchi, T. Nagai, and N. Tokura 753

Solvent Effects on ρ Values of the Hammett Equation. II ..... T. Matsui and N. Tokura 756

A Study of the Catalytic Partial Oxidation of Hydrocarbons. VI. The Effect of Molybdenum Addition to the Vanadium Oxide Catalyst on the Oxidation of Butene to Maleic Anhydride ..... M. Ai 761

Mechanism of the Ullmann Condensation Reaction. II. Effects of the Medium, the Additives and the Substituents ..... T. D. Tuong and M. Hida 765

Effective Intramolecular Hydrogen Abstraction by the Sulfonamide Radical ..... T. Ohashi, S. Takeda, M. Okahara, and S. Komori 771

γ-Induced Addition of Trialkyltin Hydrides to Unsaturated Esters ..... J. Tsurugi, M. Iida, R. Nakao, T. Fukumoto, and N. Murata 777

Studies of the Synthesis of Furan Compounds. XXIII. Cyclization Derivatives of 5-Nitro-2-furimidoylhydrazine ..... I. Hirao, Y. Kato, T. Hayakawa, and H. Tateishi 780

Biogenesis of the Essential Oils in Camphor Trees. XXVIII. On the Components of the Essential Oil of *Cinnamomum japonicum* Sieb. ..... Y. Fujita, S. Fujita, and H. Yoshikawa 784

Infrared Spectroscopic Study of Enol and Enol Derivatives Coordinated to Platinum(II) and Palladium(II) ..... Y. Wakatsuki, S. Nozakura, and S. Murahashi 786

The Kinetics of the Reaction of Thiol Acids with Anilines ..... Y. Hirabayashi, M. Mizuta, M. Kojima, Y. Horio, and H. Ishihara 791

Derivatives of Ditriazinylamine ..... Y. Fukushima, N. Nohara, Y. Hashida, S. Sekiguchi, and K. Matsui 794

Studies on Cobaloxime Compounds. III. Effects of Various Cobaloximes as Vitamin B_{12} Models and of Substrate Analogs on Diol Dehydratase System ..... Y. Hohokabe and N. Yamazaki 798

Studies on Heteroaromaticity. LII. Syntheses and Reactions of α-Acetylenic Ketones Containing Nitrofuran Ring ..... T. Sasaki and T. Yoshioka 803

Reactions of Haloferrocenes. IV. The Condensation of Haloferrocenes with Various Carboxylic Acids in the Presence of Copper(I) Oxide ..... M. Sato, Y. P. Lam, I. Motoyama, and K. Hata 808

Reactions of Haloferrocenes. V. The Formation of Ferrocenyltriphenylphosphonium Perchlorate ..... M. Sato, I. Motoyama, and K. Hata 812

Formation and Properties of Phenylthiomethyl Radical. Anodic Oxidation of Sodium Phenylthioacetate and Thermal Decomposition of *t*-Butyl Phenylthioperacetate ..... K. Uneyama, S. Torii, and S. Oae 815

The Catalytic Reaction of Alcohols with Reduced Copper ..... K. Kawamoto and Y. Nishimura 819

Syntheses of 1,2,3-Trisubstituted 4-Aminoimidazolium Salts ..... A. Chinone, S. Sato, and M. Ohta 826

The Reaction of α-Carbonyl Sulfides with Bases. I. The Reaction between α-Carbonyl Sulfides with Thiolates ..... M. Ōki, W. Funakoshi, and A. Nakamura 828

The Reaction of α-Carbonyl Sulfides with Bases. II. The Effect of Variation in the Nucleophiles ..... M. Ōki and W. Funakoshi 832

p-Toluenesulfonylation of 1,2-*O*-Cyclohexylidene-*myo*-inositol .. T. Suami, S. Ogawa, T. Tanaka, and T. Otake 835

Iminodithiocarbonates. IV. Pyrolyses of *N*-Acyl Immonium Salts of Iminodithiocarbonates ..... Y. Ueno, T. Nakai, and M. Okawara 841

Notes:

Acylation of Aluminum Trisacetylacetonate with *n*-Butyryl Chloride in the Presence of Aluminum Chloride .... T. Nojiri, M. Motoi, and I. Hashimoto 850

The Carbon Dioxide-Catalyzed Ester Exchange Reaction ..... Y. Otsuji, N. Matsumura, and E. Imoto 852

Syntheses of Fused Heterocycles *via* Cycloaddition of Hetaryne. Studies on Heteroaromaticity. Part XLVII. ..... T. Sasaki, K. Kanematsu, and M. Uchide 858

Conformations of Low-molecular-weight Poly-γ-Benzyl-L-Glutamate Films ..... T. Iio 859

Syntheses of Alkyl *p*-Toluenesulfinates by Use of *N,N'*-Dicyclohexylcarbodiimide ..... Y. Miyaji, H. Minato, and M. Kobayashi 862

Some Benzylidene and Cyclohexylidene Derivatives of 3-Deoxy-3-nitro-α-D-glucopyranose ..... T. Sakakibara, T. Takamoto, and T. Nakagawa 865

Short Communications

Ring-opening Polymerization of 2-Methyl-1,3,4-oxadiazolin-5-one .... T. Endo, T. Inoue, and M. Okawara 870

Liquid Adducts Consisting of Ammonia and Aliphatic Acid ..... S. Nakamura 871

On the Structure of Ethyl Mercaptan ..... M. Hayashi, H. Imaishi, K. Ohno, and H. Murata 872

Water Formation in the Gas Phase Radiolysis of Nitrous Oxide-Hydrocarbon Mixtures ..... S. Takao, Y. Hatano, and S. Shida 873

On the Structure of Poly-L-lysine-metal Complexes in Aqueous Solution ..... M. Nakai, M. Yoneyama, and M. Hatano 874

The Synthesis and Absolute Configurations of Lilac Alcohols ..... S. Wakayama, S. Namba, K. Hosoi, and M. Ohno 875

Chronology of the Addition of 1-Cyano-1-methylethyl Radicals to 9-Bromoanthracene Studied by CIDNP .... H. Iwamura, M. Iwamura, S. Sato, and K. Kushida 876

The NMR Spectra of Molten Polyethylene ..... K. Goto and A. Nishioka 877

Thermochromism in 5-Arylazo-8-quinolinols Diluted with Sodium Chloride ..... Y. Matsunaga 878

No. 4

General and Physical

Calorimetric Study of Polystyrenes of Low Molecular Weight ..... S. Morimoto 879

An Interpretation of Mass Spectra of Disubstituted Benzenes by Simple LCAO MO Calculation. I. ..... S. Tajima, N. Wasada, and T. Tsuchiya 884

Purity Determination of Organic Compound by a Newly Designed DTA Apparatus ..... Y. Mashiko, T. Shinoda, and H. Enokido 888

Brönsted and Lewis Acidity of Solid Nickel Sulfate.....H. Hattori, S. Miyashita, and K. Tanabe 893
Group Interactions in Polyelectrolytes. V. The Kinetics of the Amination of Chloromethylated Polystyrene with 2-Aminobutanol .....H. Kawabe and M. Yanagita 896
Excitation of Sodium Atoms by Collisions with Vibrationally Excited Molecules behind Shock Waves.....S. Tsuchiya and I. H. Suzuki 901
Studies on Salt Solution Aerosols. V. The Effect of Surface Active Substance upon the Droplet Size of an Aqueous NaCl Solution Aerosol.....Y. Ueno and I. Sano 908
The Catalytic Oxidation of Hydrogen on Titanium Dioxide; Anatase and Rutile .....Y. Onishi 912
Electron Donor-acceptor Complexes between Group IV Tetrahalides and Methylbenzenes .....M. Hatano and O. Ito 916
An Infrared Spectroscopic Study of Hydrogen Bonds. The Liquid-Liquid Interaction of Solvents with Trimethylsilanol .....T. Kagiya, Y. Sumida, T. Watanabe, and T. Tachi 923
The Molecular and Crystal Structure of 3,4-Furandicarboxylic Acid Dimethylester .....Y. Okada, K. Nakatsu, and A. Shimada 928
Effect of Phase on Excitation Transfer in the Radiolysis of Isobutane .....T. Miyazaki, T. Yamada, T. Wakayama, K. Fueki, and Z. Kuri 934
Electronic Absorption Spectra of Crystals of Thymine, Uracil, and Their Derivatives .....M. Tanaka and J. Tanaka 938
The Hydrogenation of Butadiene Catalyzed by Pentacyanocobaltate(II) in Aqueous and Non-aqueous Solvents .....T. Funabiki and K. Tarama 945
Optical Activity of Nucleic Acid-Thionine Complexes .....Y. J. I'haya and T. Nakamura 951
Electronic Spectra and Electrical Resistivities of the Molecular Complexes of Benzidine and Its Derivatives .....Y. Matsunaga and G. Saito 958
The Preparation and Nonstoichiometry of Samarium Hexaboride .....K. Niihara 963
The Effect of Pressure on the Association of Dye Molecules in an Aqueous Solution .....K. Suzuki and M. Tsuchiya 967
An MO-theoretical Interpretation of the Origin of the Orienting Effect in Aliphatic Systems .....H. Fujimoto, S. Yamabe, and K. Fukui 971
Semiconductivity and Photoconductivity of TCNQ Crystal .... S. Hiroma, H. Kuroda, and H. Akamatu 974
Observation and Interpretation of Triplet-Triplet Absorption Spectra of Substituted Naphthalenes .....T. Takemura, K. Hara, and H. Baba 977
The Role of Reaction Sites in the Radiolysis of Solid Succinic Acid.....T. Miyazaki, Y. Fujitani, T. Wakayama, K. Fueki, and Z. Kuri 984
Dielectric Relaxation and Molecular Structure. V. Application of the Single Frequency Method to Systems with Two Debye Dispersions .....K. Higasi, Y. Koga, and M. Nakamura 988
Dielectric Relaxation and Molecular Structure. VI. Dielectric Measurements at the Frequency of 100 GHz .....K. Chitoku, K. Higasi, M. Nakamura, Y. Koga, and H. Takahashi 992
Osmotic Pressures of Polystyrene, Poly-*p*-chlorostyrene and Poly-*o*-chlorostyrene Solutions.....K. Kubo and K. Ogino 997
Non-Equilibrium Thermodynamics: Steady State Thermodynamic Relations in the Non-Linear Current-Affinity Region .....R. J. Tykodi 1001
Salt and Medium Effects on H_- Indicators .....N. Chattanathan and C. Kalidas 1004
Notes:
Inverse Gas Chromatographic Investigation of Fractionated Polycarbonates.....Y. Yamamoto, S. Tsuge, and T. Takeuchi 1145
Electrochemical Evidence for the Mechanism of the Primary Stage of Photosynthesis .....A. Fujishima and K. Honda 1148
Fluorescence and Phosphorescence Spectra of α-Naphthol in Relation to Hydrogen Bonding and Proton Transfer .....A. Matsuyama and H. Baba 1162

Analytical and Inorganic

Corrosion Reaction of Iron in Phosphatizing Solution .....R. Shirakawa, S. Takeda, T. Umegaki, and T. Okabe 1007
The Spectroscopic Observation of the Selective Volatilization of Metal Solid Samples in a Nitrogen Plasma Flame .....M. Oku and K. Hirokawa 1010
Thermal Annealing Behavior of the Recoil ^{57}Co Formed by the Decay of ^{57}Ni-Labeled Hexamminenickel(II) Complexes.....T. Omori, S.-C. Wu, and T. Shiokawa 1014

Kinetic Studies of the Electron Transfer Reaction in Iron(II) and Iron(III) Systems. III. Complex Formation and Catalytic Action with Thiocyanate Ion in Dimethyl Sulfoxide ..... G. Wada, N. Yoshizawa, and Y. Sakamoto 1018

Infrared Spectra of Pentacyanonitrosylmanganese (^{14}NO and ^{15}NO) Complexes ..... E. Miki, S. Kubo, K. Mizumachi, T. Ishimori, and H. Okuno 1024

Formation of Hypophosphate in the Radiolysis of Phosphite Solution ..... N. Matsuura, M. Yoshimura, M. Takizawa, and Y. Sakaki 1027

Photon-Activation Analysis for Zirconium with Molybdenum Used as the Internal-Reference Element ..... T.-C. Pung, T. Kato, and Y. Oka 1031

Studies of Ethylenediamine-*N,N'*-diacetatocobalt(III) Complexes. I. The Preparation and Some Properties of Ethylenediamine-*N,N'*-diacetatocobalt(III) Complexes, with Chloride, Water, Ammonia, Ethylenediamine, 1,10-Phenanthroline, and 2,2'-Dipyridyl as the Additional Ligands ..... K. Kuroda and K. Watanabe 1034

The Indirect Determination of Microamounts of Mercury(II) by Means of Dithizone Extraction and AC Polarography ..... T. Kanbara and M. Hara 1040

The Effect of Solvents on the Adduct Formation of Uranyl Thenoyltrifluoroacetonate with Tributyl Phosphate ..... K. Akiba and N. Suzuki 1043

Note:

The Mercury Content of Several Acid Hot Springs in Japan ..... N. Ohta and M. Terai 1153

Organic and Biological

Synthesis and Properties of Two α-Phenylazostilbenes. A New Method for the Elimination of Water and *p*-Toluensulphonate Ion from Substituted Phenylhydrazones ..... L. Caglioti and A. G. Giumanini 1048

The Solvent Effect on the Reaction of 1,1,4,4-Tetraphenyl-2-halobuta-2,3-dien-1-ol with Mercuric Halide ..... F. Toda, N. Ooi, and K. Akagi 1050

Electronic Spectra of Phenanthrene Derivatives. Effect of Substitution ..... S. Akiyama, M. Nakagawa, and K. Nishimoto 1054

Sterically Controlled Syntheses of Optically Active Organic Compounds. XIII. Catalytic Hydrogenation of Symmetric Substrated in the Presence of Asymmetric Molecules ..... T. Yoshida and K. Harada 1062

Sterically Controlled Syntheses of Optically Active Organic Compounds. XIV. Syntheses of Dipeptides from *N*-(α-Ketoacyl)-α-amino Acid Esters ..... K. Harada and K. Matsumoto 1068

The Catalytic Dehydrogenation of Alcohols with Reduced Copper under Ultraviolet Light ..... S. Nakamura and K. Kawamoto 1072

Anodic Reaction of 5-Alkyl-2-furoic Acids in Protic Solvents ..... S. Torii, H. Tanaka, H. Ogo, and S. Yamasita 1079

Syntheses and Reactions of Functional Polymers. LIV. Syntheses and Polymerizations of *O*-Substituted-*N*-hydroxymaleimides ..... M. Narita, T. Teramoto, and M. Okawara 1084

The Stereochemistry of Nucleophilic Addition. I. The Reformatsky Reaction of 2-Methyl- and 2-Ethylcyclohexanones ..... T. Matsumoto and K. Fukui 1090

The Catalytic Dehydrogenation, Dehydroxylation, and Dehydroxymethylation of Benzyl Alcohol. II. The Effects of Sodium Compounds as Additives ..... M. Ishige, K. Sakai, M. Kawai, and K. Hata 1095

Photochemical Reduction of Nitrobenzene and Its Reduction Intermediates. IX. The Photochemical Reduction of 4-Nitropyridine in a Hydrochloric Acid - Isopropyl Alcohol Solution ..... S. Hashimoto, K. Kano, and K. Ueda 1102

Alkoxysilanes. VII. The Preparation of Alkylalkoxysiloxanes ..... I. Kijima, K. Okuda, and Y. Abe 1106

Peptide Synthesis by Oxidation-Reduction Condensation. I. Use of NPS-Peptides as Amino Component ..... M. Ueki, H. Maruyama, and T. Mukaiyama 1108

Decomposition of *cis*- and *trans*-Phenylcinnamoyl Peroxide and *t*-Butyl *cis*- and *trans*-α-Phenylperoxycinnamate. Stereochemistry of 1,2-Diphenylvinyl Radical ..... N. Wada, K. Tokumaru, and O. Simamura 1112

Oligomerization of Isoprene by Vanadium Catalysts ..... Y. Uchida, K. Furuhata, and H. Ishiwatari 1118

The Thermal Rearrangement and Degradation of 2,3-Bis(alkylimino)oxetane ..... T. Saegusa, N. Taka-ishi, and Y. Ito 1121

Radical Cations of Halogenated Tetrahydroxybenzene Diethylene Ethers ..... T. Asahara, M. Senō, and T. Teshirogi 1125

Stereoselectivity of Phenylcarbenoid of Zinc in Cycloaddition with Olefin ..... J. Nishimura, J. Furukawa, N. Kawabata, and H. Koyama 1127

The Pyrolysis of Halocyclopropanes at High Temperatures ..... T. Asahara, K. Ono, and K. Tanaka 1130

Notes:

Intramolecular Hydrogen Bonds. XVI. Preferable Conformation of 1-Tetralols ..... N. Mori, M. Yoshifuji, Y. Asabe, and Y. Tsuzuki 1137

The Syntheses and Hydrolyses of *p*-Substituted Phenyl Phosphosulfates ..... W. Tagaki, T. Eiki, and I. Tanaka 1139

The Photodecomposition of *N*-Bromosulfonamides ..... T. Ohashi, M. Okahara, and S. Komori 1141

Synthetic Studies of the Flavone Derivatives. XX. The Synthesis of Sorbifolin ..... M. Nakayama, K. Fukui, T. Horie, M. Tsukayama, and M. Masumura 1143

The Chemical Modification of Biopolymers. IV. The Introduction of Succinyl Groups into Bacterial α-Amylase ..... S. Suzuki, Y. Hachimori, R. Matoba, and K. Takasaki 1147

Asymmetric Reduction of Some Dehydrophenylalanyl Peptides ..... M. Nakayama, G. Maeda, T. Kaneko, and H. Katsura 1150

The Mass Spectra of 2-Oxo-3-aryl-1,2,3-oxathiazolidines ..... F. Yamada, T. Nishiyama, Y. Fujimoto, and M. Kinugasa 1152

Addition Reactions of Heterocumulenes to the Sb-N Bond ..... J. Koketsu, M. Okamura, and Y. Ishii 1155

Proton NMR Spectrum of *N*-Phenethyl-*o*-anisidine .. T. Asahara, M. Senō, S. Tanaka, and M. Akiyama 1156

On the Mechanism of Bromination of Olefins with Cupric Bromide ..... T. Koyano 1158

The Synthesis of 2,8-Diphenyl-4*H*,10*H*-benzodipyran-4,10-dione ..... Y. Omote, Y. Takizawa, and N. Sugiyama 1160

Spontaneous Electron Transfer from Amines to Simple Quinones in an Aqueous Medium ..... K. Maruyama, S. Suzue, and J. Osugi 1161

Elementary Reactions of Metal Alkyl in Anionic Polymerization. VI. The Synthesis and Reactivity of Calciumzinc Tetra-*n*-butyl ..... Y. Kawakami, Y. Yasuda, and T. Tsuruta 1164

Applied

The Anchoring Effect of the Fine, Powdery Copolymer of Glycidyl Methacrylate-Divinyl Benzene for Antioxidants in Polypropylene ..... Y. Mizutani, K. Kusumoto, and S. Hisano 1134

Short Communications

On Electro-optic Effect in Lyotropic Liquid Crystals ..... T. Tachibana and M. Tanaka 1166

A New Oxygen-Insertion Reaction into Silicon-Silicon Bonds with Tertiary Amine Oxides ..... H. Sakurai, M. Kira, and M. Kumada 1167

Elektronenübertragungsfähigkeit des durch die Elektroreduktion entstandenen Dimeres der 1,3-disubstituierten Pyridine ..... S. Kato, J. Nakaya, und E. Imoto 1168

Photoaddition Reactions of Pyromellitic Acid Tetramethylester to Olefins ..... Y. Katsuhara, Y. Shigemitsu, and Y. Odaira 1169

A New Tetrahedral Nickel(II) Complex—Bis(*N*-4-methoxyphenyl-3-methoxysalicylideneiminato)nickel(II) ..... A. Takeuchi and S. Yamada 1170

Phase Transition in Hexammine Nickel Halides ..... T. Matsuo. H. Suga, and S. Seki 1171

Binuclear Copper(II) Complexes Derived From 3-Formyl-5-methylsalicylaldehyde and Glycine ..... H. Okawa and S. Kida 1172

The Photo-doping of Metals into Solids for New-type Imaging Systems ..... I. Shimizu, H. Sakuma, H. Kokado, and E. Inoue 1173

The Vibrational Structure of the Charge-Transfer Band in Solution ..... J. Aihara 1174

No. 5

General and Physical

The Effect of Pressure on the Rate of the Acid-catalyzed Hydration of Propylene ..... H. Takaya, N. Todo, T. Hosoya, and T. Minegishi 1175

The Nature of a Bond between a Water Molecule and a Protonated Propylene in the Activated Complex for the Acid-catalyzed Hydration of Propylene ..... H. Takaya, N. Todo, T. Hosoya, and T. Minegishi 1179

A Theoretical Study of the Possible Interaction between Sulfonium Salts and Molecular Oxygen ..... K. Ohkubo and T. Yamabe 1183

A Theoretical Study of the Catalytic Activity of Group I Metal Salts in the Homogeneous Liquid-Phase Oxidation ..... K. Ohkubo, H. Shimada, Y. Shiotani, and M. Okada 1188

Analysis of Skeletal Deformation Vibration Spectra in Relation to the Molecular Structure ..... T. Fujiyama 1194

Electronic Structures of the Oxocarbon Anions. III. Application of the Extended Hückel and Variable Electronegativity Extended Hückel Methods.....K. Sakamoto and Y. J. I'haya 1201
The Emission Spectra of Pyrazine and Deuterated Pyrazines in the Vapor and in Rigid Matrices at 90°K.....H. Ishii, M. Koyanagi, and Y. Kanda 1205
Spectroscopic Determination of Quenching Cross-Sections of Excited Mercury Atoms (6^3P_1, 6^3P_0) in Molecular Collisions.....H. Horiguchi and S. Tsuchiya 1213
Liquid-phase Adsorption from Binary Solutions on Silica Gel. Separation Factors and Orientation of Adsorbed Components on the Surface.....T. Kagiya, Y. Sumida, and T. Tachi 1219
Ultrasonic and Thermodynamic Study on Solute-Solvent Interaction. Binary Mixtures of *t*-Butyl Chloride, *t*-Butyl Bromide and 1,1,1-Trichloroethane with Carbon Tetrachloride, Benzene, and *p*-Xylene.....O. Kiyohara and K. Arakawa 1224
ESR Study of Adsorbed Monomer and Dimer Cation Radicals of Benzene and Its Methyl Derivatives.....S. Nagai, S. Ohnishi, and I. Nitta 1230
The Crystal Structure of *cis*-Ammonium Disulfitotetramminecobaltate(III) Trihydrate, $NH_4[Co(SO_3)_2(NH_3)_4]\cdot 3H_2O$.....T. Nomura and M. Nakahara 1233
The Codimerizations of Styrene with Vinyl Compounds Catalyzed by Olefine-palladium(II) Chloride Complexes.....K. Kawamoto, A. Tatani, T. Imanaka, and S. Teranishi 1239
Conformation of Adsorbed Polymeric Chain. III.....K. Motomura, K. Sekita, and R. Matuura 1243
Conformation of Adsorbed Polymeric Chain. IV.....K. Motomura, Y. Moroi, and R. Matuura 1248
The Surface Properties of the Silica-Titania System Prepared by the Hydrolysis of Metal Alkoxides.....H. Hosaka and K. Meguro 1252
Photochemical Reaction of 9-Cl-Acridine in Aerated and Deaerated Ethanol. I.....K. Nakamaru, S. Niizuma, and M. Koizumi 1256
The Crystal and Molecular Structure of 2,5-Distyrylpyrazine.....Y. Sasada, H. Shimanouchi, H. Nakanishi, and M. Hasegawa 1262
Some Information Derived from the Infrared Spectra of Ion-radical Molecules. The Spin-density Distribution for the *p*-Chloranil Anion Radical.....Y. Iida 1271
The Crystal and Molecular Structure of Pyromellitic Acid Dihydrate (Benzene-1,2,4,5-tetracarboxylic Acid Dihydrate).....F. Takusagawa, K. Hirotsu, and A. Shimada 1274
Photochemical Reactions of Uranyl Ions with Organic Compounds. III. The Correlation between the Reaction Mode and the Pre-Equilibrium in the Photolysis of the Uranyl-lactate System.....S. Sakuraba and S. Matsushima 1278
The Adsorption of Water on SiO_2, Al_2O_3, and $SiO_2\cdot Al_2O_3$. The Relation between the Amounts of Physisorbed and Chemisorbed Water.....T. Morimoto, M. Nagao, and J. Imai 1282

Notes:

ESR Studies of the $(RO)_2PSS$ Radicals in UV-Irradiated *O,O'*-Dialkyl Dithiophosphate Glasses.....M. Sato, M. Yanagita, Y. Fujita, and T. Kwan 1423
Electron-accepting Properties of 2,3-Dicyano-1,4-benzoquinone and 2,3-Dichloro-5,6-dicyano-1,4-benzoquinone.....Y. Iida 1430
The Charge-transfer Complexes of Metal Chelates of 8-Hydroxyquinoline with 2,5-Diazido-3,6-dichloro-1,4-benzoquinone and 2,5-Diazido-3,6-dibromo-1,4-benzoquinone.....S. Koizumi and Y. Iida 1436

Analytical and Inorganic

Stability Constants of Cu(II) Chelates with *o*-Phenylenediamine Derivatives.....K. Kina and K. Tôei 1289
Electron-Transfer Reactions of Multidentate Ligand Cobalt(III) Complexes. I. The Reductions of Some Chloro(triethylenetetramine)cobalt(III) Complexes by Iron(II).....Y. Kurimura, K. Ohashi, T. Ohtsuki, and K. Yamamoto 1293
The Thermodynamic Properties of the Nonstoichiometric Ceric Oxide at Temperatures from 900 to 1300°C.....B. Iwasaki and T. Katsura 1297
The pH Dependence of Anion Exchange Chromatographic Separation of Tri- and Tetraphosphate Anions.....T. Nakamura, M. Kimura, H. Waki, and S. Ohashi 1302
The Chemistry of Protactinium. IX. A Study of the Solvent Extraction of Protactinium(V) from a Perchloric Acid Solution Using Di(2-ethylhexyl)phosphoric Acid as the Extractant.....T. Mitsugashira 1305

Notes:

Retention Index in Programmed Temperature Gas Chromatography.....I. Takemura 1421
Notiz zur charakteristischen Färbung der mit farblosen Anionen, OH^-, J^- und S^{2-}, beladenen, starkbasischen Anionenaustauscherharze schwacher Eigenfarbe durch Messungen der diffusen Reflexionsspektren.....M. Fujimoto und T. Suga 1425

The X-Ray Powder Diffraction Pattern of Tetrasulfur Tetranitride ..... S. Hamada, A. Takanashi, and T. Shirai 1433

The Thermochromism of Molybdenum(V) in Hydrochloric Acid Solutions ..... Y. Yoshino, I. Taminaga, and S. Uchida 1435

Organic and Biological

The Reaction of Acetylenecarboxylic Acid with Amines. XV. Reaffirmation of the Enamine Structure Facilitated by Intramolecular Hydrogen Bonding Common to the Reaction Products ..... Y. Iwanami 1311

The Reaction of Acetylenecarboxylic Acid with Amines. XVI. Formation of Alkyl Isoxanthopterinacetates Possessing Imine Structure ..... Y. Iwanami 1314

Heterocycles Structurally Influenced by a Side Chain. I. 3-Phenacyl-2(1*H*)-quinoxalinones and 3-Phenacyl-2*H*-1,4-benzoxazin-2-ones ..... Y. Iwanami, T. Seki, and T. Inagaki 1316

The Oligomerization of Butadiene with Nickel Complexes Produced by Means of the Electrolysis of Nickel(II) Chloride ..... T. Ohta, K. Ebina, and N. Yamazaki 1321

The Zinc Bromide-catalyzed Rearrangement of Pulegone Oxide and Piperitone Oxide ..... H. Watanabe, J. Katsuhara, and N. Yamamoto 1328

Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XVIII. ..... Y. Izumi and K. Ohkubo 1330

Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XX. The Effect of Additives on the Asymmetric Activity ..... F. Higashi, T. Ninomiya, and Y. Izumi 1333

Intramolecular Interaction between Hydroxy Group and π-Electrons. XXIV. The Interaction Involving the Cyano Group ..... M. Ōki and T. Yoshida 1336

The Polymerizations of 2-Vinyl-4-acryloxy-1,3-dioxolane and 2-Vinyl-4-methacryloxy-1,3-dioxolane ..... T. Ouchi, K. Yokoi, K. Yoshimura, and M. Oiwa 1339

The Reaction of Ethyl Alkylchloropyruvate with Sodiomalonate and Sodioacetoacetate ..... A. Takeda, S. Wada, M. Fujii, I. Nakasima, and S. Hirata 1342

Conformational Changes in Heterocyclic Analogs of Metaparacyclophane ..... S. Akabori, K. Shiomi, and T. Sato 1346

Kinetics of Liquid-phase Hydrogenation of Aliphatic α,β-Unsaturated Aldehyde over Raney Cobalt Catalyst ..... K. Hotta and T. Kubomatsu 1348

Reactions of Allenes. IV. New Palladium Complexes Having a Bridged Allene Trimer Ligand ..... T. Okamoto 1353

Thiocyanoacetate. I. Reactions of Thiocyanoacetic Esters with Aldehydes ..... S. Kambe, T. Hayashii, H. Yasuda, and H. Midorikawa 1357

Formation of Ketenimines by the Reaction of Thioamides with Diethyl Azodicarboxylate and Triphenylphosphine ..... O. Mitsunobu, K. Kato, and M. Wada 1362

The Reactions of Aroyl Peroxides with Grignard Reagents. III. On the Structure and the Reaction of the Complex Containing Benzoyl Peroxide ..... M. Ōkubo, K. Maruyama, and J. Ōsugi 1365

The Elimination Orientation in the Fluoride-promoted Olefin Formation. A Comparison with the Alkoxide-promoted Eliminations ..... N. Ono 1369

Peptide Synthesis by Oxidation-Reduction Condensation. II. The Use of Disulfide as an Oxidant ..... R. Matsueda, H. Maruyama, M. Ueki, and T. Mukaiyama 1373

Liquid Phase Chlorination of Olefins with Cupric Chloride. III. Effect of Additives and Kinetics ..... T. Koyano and O. Watanabe 1378

Studies on Reactions of Isoprenoids. XIV. Facile Lactone Formations from 2-*endo*-Cyano-, 2-*endo*-Cyanomethyl-, and 2-*endo*-Carboxymethyl-5-norbornenes ..... T. Sasaki, S. Eguchi, and M. Sugimoto 1382

The Synthesis of Methylacetylene by the Pyrolysis of Propylene. VI. The Pyrolysis of Allyl Iodide ..... S. Kunichika, Y. Sakakibara, and M. Taniuchi 1388

Studies of the Thiocarbonyl Compounds. III. The Mechanism of the Thermal Rearrangement of Aryl Thionocarboxylates ..... A. Kaji, Y. Araki, and K. Miyazaki 1393

The Synthesis of the Polymer Containing the Si–O-phenylene Bond, using Transition Metal Salts as Catalysts ..... Y. Iwakura, K. Uno, F. Toda, K. Hattori, and M. Abe 1400

Radikalische aromatische *m*-Nitrierung bei Umsetzung von Benzoylperoxyd mit Stickstoffdioxyd und bei Umsetzung von *p*-Chlorperoxybenzoesäure mit Stickstoffoxyd in Toluol ..... T. Suehiro, M. Hirai, und T. Kaneko 1402

The Synthetic Intermediate of Pyridoxine. II. The Thermal Cyclization of Ethyl α-Isocyanopropionate to 5-Ethoxy-4-methyloxazole ..... I. Maeda, K. Togo, and R. Yoshida 1407

Studies on Aminosugars. XXVI. A New Method for the Simultaneous Protection of Amino and Hydroxyl Groups in Aminosugars and Aminocyclitols ..... S. Umezawa, Y. Takagi, and T. Tsuchiya 1411

Notes:

Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel Catalyst. XVI. ..... Y. Izumi, S. Yajima, K. Okubo, and K. K. Babievsky 1416

Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XVII. ..... Y. Izumi, T. Harada, T. Tanabe, and K. Okuda 1418
Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XIX..... T. Harada, M. Imaida, and Y. Izumi 1419
The Coupling Reaction of Phenylmagnesium Bromide with Mn(III) or Co(III) Tris(acetylacetonate) ..... T. Nakaya, H. Arabori, and M. Imoto 1422
The NMR Spectra of Several *N*-(2-Biphenylyl)carboxamides..... M. Ohashi, K. Tsujimoto, A. Yoshino, and T. Yonezawa 1428
The Novel Synthesis of Halodeoxy Sugars..... S. Inokawa, K. Seo, H. Yoshida, and T. Ogata 1431
Conformational Factors Affecting the NMR Chemical Shifts of Nuclear Protons in Some Diarylmethanes.... G. Montaudo, S. Caccamese, P. Finocchiaro, and F. Bottino 1439

Short Communications

Hydration of 2-Cyanopyridine with Metal Chelates..... S. Komiya, S. Suzuki, and K. Watanabe 1440
The Reaction of Bis(2-cyanopyridine)copper(II) Chloride with Amines in Methanol..... S. Suzuki, M. Nakahara, and K. Watanabe 1441
The Anomeric Configuration of 6-Methyl-3-D-glycosyluracil....N. Yamaoka, H. Sugiyama, and K. Tuzimura 1442
Polarographic Investigation of Copper(II)-Poly(α,L-Glutamic Acid) Complex in the Helix-Coil Transition Region..... S. Inoue, K. Yamaoka, and M. Miura 1443
Satellite X-Ray Scattering by TCNQ-Phenothiazine Complex and Diffuse Scattering by TCNQ-*N*-Methylphenothiazine Complex..... H. Kobayashi and Y. Saito 1444
Studies of the Coordination Bonding and Stability of the Mixed-ligand Complexes of Copper(II)..... H. Yokoi, M. Otagiri, and T. Isobe 1445
Triplet Dimers Observed for Several β-Diketone Chelate Complexes of Copper(II) in Toluene..... H. Yokoi and T. Isobe 1446
On the Planar Structure of the Bis(dimethylglyoximato)cobalt(I) Complex..... N. Maki 1447
The Synthesis of Lanthanide(III) Complexes with Schiff Bases Obtained from Salicylaldehyde ..... S. Yamada, K. Yamanouchi, and H. Kuma 1448
The Photo-erasable Memory Effect Associated with a "Conductive Path" Formed in Ag-doped Chalcogenide Glasses..... H. Sakuma, I. Shimizu, H. Kokado, and E. Inoue 1449
Electrochemiluminescence of 9,10-Dichloroanthracene and 9,10-Dibromoanthracene..... T. Matsumoto, M. Sato, S. Hirayama, and S. Uemura 1450
The Solvent Effect on the Catalytic Activity of Benzonitrile-Alkali Ion Salt Solutions for the Hydrogen Exchange Reactions..... M. Ichikawa and K. Tamaru 1451
New Finding of Glassy Liquid Crystal—a Non-equilibrium State of Cholesteryl Hydrogen Phthalate..... K. Tsuji, M. Sorai, and S. Seki 1452
Infrared Longitudial Bands in Crystalline Carbon Dioxide ..... H. Yamada, A. Kimoto, and K. Sannabe 1453
Spatial Distribution of Potassium Atoms Scattered from the (001) Surfaces of Lithium Fluoride..... S. Tomoda, I. Kusunoki, and K. Kodera 1454

No. 6

General and Physical

A Chlorine NQR Study of Trichlorides of Group V Elements ..... M. Hashimoto, T. Morie, and Y. Kato 1455
The Catalytic Oxidation of Carbon Monoxide on Titanium Dioxide; Anatase and Rutile .....Y. Onishi 1460
An Adiabatic Calorimeter for Heat Capacity Measurements in the Temperature Range from 80 to 550 K. Heat Capacities of α-Alumina (Sapphire) and Anhydrous Magnesium Acetate ..... N. Onodera, A. Kimoto, M. Sakiyama, and S. Seki 1463
The Dichroic Spectra of Hydroxy Derivatives of Naphthalene, Anthracene, and Phenanthrene in Polyvinylalcohol Sheets .....H. Inoue, T. Nakamura, and T. Igarashi 1469
Studies on Intermolecular Complex Formation. I. Between Nucleotide Bases and Organic Compounds.... C. Tamura, N. Sakurai, and S. Sato 1473
Studies of the Alkaline Earth Complexes in Various Solutions. VI. The Extraction and Complex Formation of Beryllium(II) in Sodium Perchlorate Media Containing Some Univalent Inorganic Anions .... T. Sekine, Y. Komatsu, and M. Sakairi 1480

Measurement of Negative Ions Formed by Electron Impact. VIII. Ionization Efficiency Curves of Negative Ions from Methyl and Ethyl Cyanides ..... S. Tsuda, A. Yokohata, and T. Umaba 1486

The Hybridization Effect on the Equilibrium Distance. III. ..... T. Miyazaki, T. Shigetani, and H. Shinoda 1491

The Protonation of Aromatic Hydrocarbon Radical Anions. I. A Comparison of Methods and a Study of the Mechanism ..... S. Hayano and M. Fujihira 1496

The Solubilization of Orange OT in Anionic Surfactant Solutions: A Polarographic Study ..... S. Hayano and N. Shinozuka 1503

Proton Spin-Lattice Relaxation Studies of Intermolecular Interactions in the Mixtures of Chloroform and Proton-Acceptor Solvents ..... K. Sato and A. Nishioka 1506

The Liquid-phase γ-Radiolysis of Benzene-Nitrous Oxide Mixtures ..... S. Hirokami, S. Shishido, and S. Sato 1511

Test for Validity of Constant Ionic Medium Principle. Variation of the Activity Coefficient of Hydrogen Ion in Various Compositions of Medium Cations with 3 M Perchlorate Ions ..... H. Ohtaki and G. Biedermann 1515

The Water Structure Model of Narten *et al.* and the Pressure Effect on Sound Absorption in Water..... O. Nomoto and H. Endo 1519

ESR Measurement and Irradiation at Variable Temperatures below 77°K..... M. Iwasaki, K. Nunome, T. Ichikawa, and K. Toriyama 1522

Studies on Triplet Energy Transfer by Means of an Emission-Absorption Flash Technique. II. Mixed Triplet-Triplet Annihilation in Ethanol ..... K. Kikuchi, H. Kokubun, and M. Koizumi 1527

Nature of the Acid Sites on the Surface of Silica-alumina. II. The Relation between the Acid Property of the Sites and the Photo-ionization of Polyacenes Adsorbed on the Surfaces ..... K. Takimoto and M. Miura 1534

The Reactions of Photogenerated Solvated Electrons in Methanolic Solutions of Potassium Iodide ..... H. Seki and M. Imamura 1538

Notes:

Deuteron Quadrupole Interactions in Two Modifications of Oxalic Acid Dihydrate Crystal ..... T. Chiba and G. Soda 1703

Enthalpy of Vaporization of Some Organic Substances at 25.0°C and Test of Calorimeter ..... K. Kusano and I. Wadsö 1705

Partial Molar Heats of Solution of Hydrated Electrolytes in Saturated Solutions..... H. Nakayama 1709

Effect of Pressure on Graphitization of Carbon. VIII. Effect of Water on the Graphitization of Carbon under High Pressure ..... K. Kamiya and M. Inagaki 1712

Analytical and Inorganic

The Activity of Dilute Sodium in Liquid Au-Na Alloy ..... K. Hirota and T. Katsura 1544

Preparation of Chromium(III) and Cobalt(III) Complexes with *d,l*-α-Phenylalanine-*N,N*-diacetic Acid ..... A. Uehara, E. Kyuno, and R. Tsuchiya 1548

Preparation of Hydroxoaquo- and Diol-Type Cobalt(III) Complexes with Analogues of Nitriiotriacetic Acid ..... A. Uehara, E. Kyuno, and R. Tsuchiya 1552

The Chromium(III) Complexes with Natural α-Amino Acids ..... H. Mizuochi, A. Uehara, E. Kyuno, and R. Tsuchiya 1555

Spectrophotometric Determination of Benzethonium with Tetrabromophenolphthalein Ethyl Ester..... M. Tsubouchi 1560

Studies on Cobaloxime Compounds. IV. The Polarography of Cobaloximes ..... Y. Hohokabe and N. Yamazaki 1563

The Crystal Structure of k'-Al_2O_3, the New Intermediate Phase ..... M. Okumiya and G. Yamaguchi 1567

Several Novel Ru(VI) and RU(IV) Complexes Derived from $[RuO_4bipy]$ and $[RuO_3phen]_2O$..... T. Ishiyama 1571

The Chemical-transport Reaction of Spinel-type Oxides..... K. Nagasawa, Y. Bando, and T. Takada 1577

The Effect of Axial Pyridine Ligands on the Charge Transfer Bands of *trans*-Bis(dimethylglyoximato)Cobalt(III) and -Iron(II) Complexes ..... Y. Yamano, I. Masuda, and K. Shinra 1581

Kinetics and Mechanism of the Ligand Substitution Reaction of the Mercury(II)-4-(2-pyridylazo)resorcinol Complex with 1,2-Cyclohexanediamine-*N,N,N',N'*-tetraacetic Acid ..... S. Funahashi, M. Tabata, and M. Tanaka 1586

The Extraction of the Cesium Ion with Some Nitrophenols into Nitrobenzene. I. Distribution Studies .... M. Koyama, O. Tochiyama, and T. Fujinaga 1591

The Crystal Structure of 2,2'-Bipyridinium Tetrabromocobaltate(II) .... S. Koda, S. Ooi, and H. Kuroya 1597

Preparation and Circular Dichroism of Six Isomers of Bis(L-alaninate-*N*-monoacetato)cobaltate(III) Complexes ..... K. Okamoto, J. Hidaka, and Y. Shimura 1601

Note:

The Chemical Behavior of the ^{73}As Formed by the EC Decay of ^{73}Se in an Organic Solvent ..... T. Sotobayashi, T. Suzuki, and T. Noda 1711

Organic and Biological

Studies of the Pyrolysis of Triglycerides ..... K. Kitamura 1606

A Novel Synthesis of 4*H*-1,3-Thiazin-4-one Derivatives ..... M. Yokoyama 1610

The Michael Reaction of Fluoro-substituted-9,9'-Bifluorenylidenes and -Fluorenes, and the Syntheses of Some Related Compounds ..... M. Minabe, A. Tanaka, M. Wakui, and K. Suzuki 1614

Substituents Effects on the Azo-Hydrazone Tautomerism of 4-Arylazo-2,6-di-*t*-butylphenols ..... E. Manda 1620

The Radical Polymerization and Copolymerization of Triallylidene Sorbitol with Styrene or Acrylonitrile .. T. Ouchi, Y. Yaguchi, and M. Oiwa 1623

Elimination Reactions Promoted by Fluoride Ion in Acetonitrile. Elimination Reaction from 2-Arylethyl Derivatives ..... J. Hayami, N. Ono, and A. Kaji 1628

The Hofmann Rearrangement. I. Kinetic Substituent Effects of *ortho*-, *meta*-, and *para*-Substituted *N*-Bromobenzamides ..... T. Imamoto, Y. Tsuno, and Y. Yukawa 1632

Tha Hofmann Rearrangement. II. Kinetic Substituent Effects of *ortho*-, *meta*-, and *para*-Substituted *N*-Chlorobenzamides ..... T. Imamoto, Y. Tsuno, and Y. Yukawa 1639

The Hofmann Rearrangement. III. Kinetic Substituent Effects of 4- and 5-Substituted 2-Chloro-*N*-chlorobenzamides ..... T. Imamoto, Y. Tsuno, and Y. Yukawa 1644

Synthesis and Spectral Properties of Chloro-substituted Triptycenes ..... I. Mori, T. Kadosaka, Y. Sakata, and S. Misumi 1649

The Cyclization Products from Acetone with Cyanoacetic Esters ..... M. Igarashi and H. Midorikawa 1653

The Independent Isolation of a Primary Enamine and the Tautomeric Imine ..... C. Shin, M. Masaki, and M. Ohta 1657

Further Studies of the Chemical Cleavage of the Tryptophyl Bond by Ozonization-hydrazine Treatment .. F. Sakiyama and S. Sakai 1661

Photochemical Reaction of 3,4-Diphenylsydnone ..... Y. Huseya, A. Chinone, and M. Ohta 1667

Mechanism and Reactivity of Hydrolysis of Aliphatic Sulfonate Esters ..... A. Mori, M. Nagayama, and H. Mandai 1669

The Preparation of Deoxyguanosine Oligomers on an Insoluble Polymer Support ..... T. Shimidzu and R. L. Letsinger 1673

Substituted Benzopyranopyridine and Pyrimidine Ring Syntheses by the Ternary Condensation of Ethyl Cyanoacetate, Salicylaldehyde, and Certain Aldehydes in the Presence of Ammonium Acetate ..... A. Sakurai, H. Midorikawa, and Y. Hashimoto 1677

Nuclear Magnetic Resonance Study of the Effect of the Hydrogen Bond on the Internal Rotation of Biphenyls ..... M. Ōki, K. Akashi, G. Yamamoto, and H. Iwamura 1683

Reactions of *p*-Benzoquinone Derivatives with Ethylenediamine ..... T. Asahara, M. Senō, and T. Teshirogi 1687

A Synthesis of Thyrotropin-Releasing Factor ..... K. Inouye, K. Namba, and H. Otsuka 1689

Aroyloxy-Radikal. Die Aktivierungsenergien bei der Kohlendioxyd-Abspaltung und bei der Anlagerung an Benzol-Doppelbindung ..... T. Suehiro und M. Ishida 1692

Nucleoside Analogs. II. A Synthesis of 9-Adenyl-deoxyinositols ..... T. Suami, Y. Fukai, Y. Sakota, M. Karimoto, N. Takoi, and Y. Tsukamoto 1695

NOTES:

Synthetic Studies of the Flavone Derivatives. XXII. The Synthesis of Eupatoretin and Eupatin ..... K. FUKUI, T. MATSUMOTO, and S. IMAI 1698

The Reactions of Hexafluoropropylene with Arylamines and the Preparation of *N*-(2,3,3,3-Tetrafluoropropyl)arylamines ..... N. ISHIKAWA and T. MURAMATSU 1699

A Cleavage of a Furan Derivative Observed during the Curtius Reaction ..... T. YOSHIDA, H. KATSURA, and T. KANEKO 1701

The Reaction of Cyclohepta-2,6-dienone with Amines ..... T. SATO, K. SATO, and T. MUKAI 1708

The Dehydration of Alcohols to Ethers or Olefins with Triphenyl[(phenylcarbamoyl)methyl]phosphonium Inner Salt ..... S. ITO and S. SUGIURA 1714

Synthesis and Reactions of Functional Polymers. LVII. Synthesis and Polymerization of Isopropenyl-1,3,4-oxadiazolin-5-ones ..... T. ENDO, T. INOUE, and M. OKAWARA 1717

Synthese Einiger 6-Substituierten 9-Vinylpurine ..... K. TAKEMOTO, F. KAWAKUBO, und K. KONDO 1718

Short Communications

Chronopotentiometric Oxidation of Biferrocenyl in Anhydrous Acetonitrile and in Methylene Chloride ..... T. MATSUMOTO, M. SATO, and A. ICHIMURA 1720

On the Composition of the Pentacyanocobaltate(I) Complex ..... N. MAKI and Y. ISHIUCHI 1721

Infrared Study on Interaction between Porphyrin and Divalent Metal Ion ..... H. OGOSHI and Z. YOSHIDA 1722

A New Method for Producing Low-electrical-resistivity Patterns in Insulating Chalcogenide Glasses ..... H. SAKUMA, I. SHIMIZU, H. KOKADO, and E. INOUE 1723

Pyrolysis of Allethrin ..... Y. NAKADA, Y. YURA, and K. MURAYAMA 1724

Partial Ion-Association Constant for Contact Ion-Pairs in Aqueous $[Co(NH_3)_6]^{3+}$-I^- Systems ..... H. YOKOYAMA and H. YAMATERA 1725

The α-Chlorination of Sulfoxides with *N*-Chlorosuccinimide ..... G. TSUCHIHASHI and K. OGURA 1726

No. 7

General and Physical

The Differential Thermal Analysis of Potassium Oxalate ..... T. HIGASHIYAMA and S. HASEGAWA 1727

The Crystal Structure of Bis(pyridine-2-acetamide)copper(II) Perchlorate ..... M. SEKIZAKI, F. MARUMO, K. YAMASAKI, and Y. SAITO 1731

Configuration Interaction Studies on Contact Shift and Contact Nuclear Spin-Spin Coupling in Paramagnetic Transition Metal Complexes ..... H. KATÔ and H. KATO 1734

Dehydration and Dehydrogenation of Alcohols over Acid-Base Bifunctional Catalysts ..... H. NIIYAMA and E. ECHIGOYA 1739

Electronic Spectra of Biphenyl and Fluorene ..... T. HOSHI, H. INOUE, J. SHIRAISHI, and Y. TANIZAKI 1743

The Effect of Benzene on the Reaction of the Recoil Bromine Atom with Ethyl Bromide ..... T. SHIOKAWA, T. SATO, and K. KONDO 1746

The Emission Spectra of Hydrogen Atoms Produced from Methanol by Electron Impact ..... I. FUJITA, M. HATADA, T. OGAWA, and K. HIROTA 1751

Studies of the Surface of Titanium Dioxide. I. The Effect of Reduction by Hydrogen on the Heat of Immersion in Water ..... T. IWAKI and M. MIURA 1754

The Crystal Spectra of Molecular Compounds of 1,6-Diaminopyrene ..... T. AMANO, H. KURODA, and H. AKAMATU 1758

Positron-lifetime Measurements in Polymerizing Organic Solids ..... Y. ITO, K. OKUDA, and Y. TABATA 1764

Radiotracer Studies on Adsorption of Surface Active Substance at Aqueous Surface. III. The Effects of Salt on the Adsorption of Sodium Dodecylsulfate ..... K. TAJIMA 1767

Effects of Pressure on the Chemical Properties of Solid Surfaces. V. The Surface Acidity of the Compressed Aluminum Sulfate ..... T. KAWAKAMI, A. KONNO, and Y. OGINO 1772

The Electronic Spectra of the Anion Radical Salts Derived from 2,3-Dicyano-1,4-benzoquinone and 2,3-Dichloro-5,6-dicyano-1,4-benzoquinone ..... Y. IIDA 1777

Ionization of Some Quinones by the Interaction with Aliphatic Amines ..... T. YAMAOKA and S. NAGAKURA 1780

Structures of Bicyclo[2.2.2]octene and Bicyclo[2.2.2]octadiene as Studied by Gas Electron Diffraction ..... A. YOKOZEKI and K. KUCHITSU 1783

The Electron-acceptor Strengths of Some Substituted Naphthoquinones ..... G. SAITO and Y. MATSUNAGA 1788

NOTES:

Dispersion State of Platinum on Zeolite and Hydrogenation of Ethylene ..... T. KUBO, H. ARAI, H. TOMINAGA, and T. KUNUGI 1968

Effect of Hole Scavengers on the Radiolysis of Water ..... T. SAWAI 1977

Proton Transfer through Hydrogen Bond in Solid Pyridine-Chloroacetic Acid Complexes as Evidenced by ^{35}Cl Nuclear Quadrupole Resonance ..... H. CHIHARA and N. NAKAMURA 1980

The Bulk Photoconductivity of Violanthrene Single Crystals ..... M. SOMA 1989

Hydrogen Bonding in Sodium Tetrachloroaurate(III) Dihydrate and Sodium Tetrachloroiodate(III) Dihydrate ..... K. ICHIDA, Y. KURODA, D. NAKAMURA, and M. KUBO 1996

Analytical and Inorganic

Some New Oxygenated Cobalt Complexes ..... M. MUNAKATA 1791

Electron-Transfer Reactions of Multidentate Ligand Cobalt(III) Complexes. II. The Effect of Nonbridging Ligands ..... Y. KURIMURA and K. OHASHI 1797

The Photonuclear Reactions Leading to ^{24}Na and ^{28}Mg ..... T. SAITO 1800

Isotopic Fractionation in a Thermal Ion Source ..... H. KANNO 1808

Conductometric Determination of Ion-pair Formation Constants of Tris(ethylenediamine)cobalt(III) Ion with Maleate and Fumarate Ions in Aqueous Solutions ..... S. KATAYAMA and R. TAMAMUSHI 1812

Multidentate Ligand Substitution Reactions. XII. Substitution Reactions of the Nickel(II)-nitrilotriacetate Complex with Diethylenetriaminepentaacetic Acid in the Presence of Ethylenediamine and of the Nickel(II)-*N*-(2-hydroxyethyl)-iminodiacetate Complex with Ethylenediaminetetraacetic Acid and Cyclohexane-1,2-diamine-*N,N,N',N'*-tetraacetic Acid ..... M. KODAMA, S. KARASAWA, and T. WATANABE 1815

Hydrolysis of Nickel(II) Ion in Aqueous 3M Sodium Chloride Medium ..... H. OHTAKI and G. BIEDERMANN 1822

Solvolysis of Organic Phosphates. IV. 3-Pyridyl and 8-Quinolyl Phosphates as Effected by the Presence of Metal Ions ..... Y. MURAKAMI and J. SUNAMOTO 1827

Studies of the Solvent Extraction of Potassium by Nitrobenzene in the Presence of Organic or Inorganic Acids ..... T. IWACHIDO 1835

The Carbon-catalyzed Oxidation of Co(II)-Ethylenediaminetetraacetate by Molecular Oxygen ..... A. TOMITA 1840

The Fluorine, Chlorine, Bromine, and Iodine Contents of Volcanic Rocks in Japan ..... M. YOSHIDA, K. TAKAHASHI, N. YONEHARA, T. OZAWA, and I. IWASAKI 1844

^{55}Mn Nuclear Magnetic Resonance Studies of the Compounds with Manganese-Tin Bonds ..... S. ONAKA, T. MIYAMOTO, and Y. SASAKI 1851

The Synthesis of Phosphonophenylazochromotropic Acids and the Stability Constants of Its Alkaline Earth Metal Chelates ..... K. KINA, H. MIYATA, and K. TOEI 1855

NOTES:

The Catalytic Effect of Metal Ions on the Hydrolysis of Disodium Pyrophosphite ..... S. UEDA and Y. SASAKI 1972

Hydration of the Cobalt(III) Complexes. II ..... F. KAWAIZUMI and Y. MIYAHARA 1979

A Polarographic Study of Amino Acids in Aqueous Solution ..... S. FUJIWARA, Y. UMEZAWA, and H. ISHIZUKA 1984

Organic and Biological

Intramolecular Hydrogen Bonds. XVII. Intramolecular Hydrogen Bonding Involving the Mercapto Group as a Hydrogen Donor ..... N. MORI, S. KAIDO, K. SUZUKI, M. NAKAMURA, and Y. TSUZUKI 1858

The Preparation and Properties of Mesoionic 5-Iminothiazole Derivatives ..... T. SHIBA and H. KATO 1864

Isolation and Characterization of Pteridines from *Pseudomonas ovalis* ..... A. SUZUKI and M. GOTO 1869

Studies on the Interaction of Isocyanides with Transition-metal Complexes. VII. Insertion Reactions of Isocyanide into Alkyl-platinum Sigma Bonds ..... Y. YAMAMOTO and H. YAMAZAKI 1873

Restricted Rotation Involving the Tetrahedral Carbon. I. Some Diels-Alder Adducts Derived from 9-Substituted Anthracenes ..... M. ŌKI and M. SUDA 1876

Restricted Rotation Involving the Tetrahedral Carbon. II. 2-Substituted 4,6,8-Trimethylazulenes ..... M. ŌKI and N. NAKAMURA 1880

Reactions of Tosylhydrazide Derivatives Having Olefinic Groups ..... T. SATO and I. HOMMA 1885

The Trialkylborane-initiated Graft Copolymerization of Methyl Methacrylate onto Hemoglobin ..... K. Kojima, S. Iwabuchi, K. Kojima, and N. Tarumi 1891

Studies of *N*-Sulfinyl Compounds. IV. The Reactions of *N*-Sulfinylanilines and -phenylhydrazines with Styrene Oxide ..... O. Tsuge and S. Mataka 1896

Kinetics and Equilibrium Positions of *cis-trans* Isomerization of 1,2-Bis(phenylthio)ethylene and Its Exchange with Benzenethyl Radicals ..... A. Ohno, T. Saito, A. Kudo, and G. Tsuchihashi 1901

The ESR Spectra of 2- and 6-Methoxyazulene Anion Radicals ..... Y. Ikegami and S. Seto 1905

Cyclic Acetylenes. XIII. The Syntheses and Properties of *p,p'*-Bridged Cyclic Diphenyldiacetylenes ..... M. Kataoka, T. Ando, and M. Nakagawa 1909

Cyclic Acetylenes. XIV. The Effects of Ring Strain on the Electronic Spectra of Cyclic Tolans and Cyclic Diphenyldiacetylenes ..... F. Toda, T. Ando, M. Kataoka, and M. Nakagawa 1914

The Catalytic Dehydrogenation, Dehydroxylation, and Dehydroxymethylation of Benzyl Alcohol. III. The Effect of Metal Chlorides as Additives ..... M. Ishige, K. Sakai, M. Kawai, and K. Hata 1917

Studies of the Synthesis of Furan Compounds. XXIV. The Synthesis of 5-[2-(5-Nitro-2-furyl)-1-(4-nitrophenyl)-vinyl]-1,3,4-oxadiazole and Its Related Compounds ..... I. Hirao, Y. Kato, and T. Hirota 1923

Electrochemical Reduction of Aza-heteroaromatic Compounds. IV. Stabilities of Neutral Free Radicals Electrolytically Derived from 1-Methylcyanoquinolinium Perchlorates ..... S. Kato, J. Nakaya, and E. Imoto 1928

Iminodithiocarbonates. III. Reactions with Some Electrophiles and the Structural Effect on Nucleophilic Reactivities and Basicities ..... Y. Ueno, T. Nakai, and M. Okawara 1933

Solvolysis of Organic Phosphates. III. 3-Pyridyl and 8-Quinolyl Phosphates in Spontaneous Reaction ..... Y. Murakami and J. Sunamoto 1939

Relative Reactivities in the Addition of Free Trichloromethyl Radicals to Substituted Styrenes. An Attempt to Separate Polar and Resonance Effects ..... H. Sakurai, S. Hayashi, and A. Hosomi 1945

The Preparation and Thermal Decomposition of Alkyl Acyl Dithiol- and Trithiocarbonates. A Convenient Method for the Synthesis of Thiolesters ..... H. Yoshida, T. Ogata, and S. Inokawa 1949

Some Oxidation and Reduction Products of 4-Acetyltropolone and Its Methyl Ethers ..... T. Nozoe, K. Takase, K. Shimizu, and M. Yasunami 1951

A Novel Cyclodimerization of Butadiene. A Synthetic Route to 2-Methylenevinylcyclopentane ..... J. Kiji, K. Masui, and J. Furukawa 1956

Notes:

Mass Spectra of Phenyl *p*-Toluates and Toluanilides Substituent Effect in Fragmentation. II ..... S. Kozuka, H. Takahashi, and S. Oae 1965

Oligomerization of Isoprene by the Catalyst Systems Consisting of Tetraallylzirconium and Aluminum Compounds ..... Y. Uchida, K. Furuhata, and S. Yoshida 1966

The Photolysis of 1-Phenylbicyclo[*n*.1.0]alkanes in Acidic Media ..... S. Fujita, Y. Hayashi, and H. Nozaki 1970

The Chlorination of Cyclooctadiene with Cupric Chloride in Acetonitrile Containing Lithium Chloride ..... S. Uemura, A. Tabata, Y. Kimura, and K. Ichikawa 1973

The Absolute Configurations of 2-Phenylaziridine and Its Derivatives ..... S. Fujita, K. Imamura, and H. Nozaki 1975

Ene Reaction of Azulenes with Some Dienophiles ..... S. Itô, H. Takeshita, and T. Makino 1982

Photochemical Oxidations of 4,5,9,10-Tetrahydropyrenes ..... H. Shizuka, K. Sorimachi, T. Morita, K. Nishiyama, and T. Sato 1983

Preparation of 1,7-Bis(*p*-hydroxyphenyl)heptane ..... I. Kawasaki, K. Matsuda, and T. Kaneko 1986

The Photoreduction of Benzophenone by Thioethers ..... W. Ando, J. Suzuki, and T. Migita 1987

The Synthesis of Poly[N^{ε}-(*l*)-menthyloxycarbonyl-L-lysine] and Its Secondary Structure ..... H. Yamamoto and T. Hayakawa 1990

Aminocyclitols. XXV. Synthetic Studies on Streptamine and Its Analogs ..... T. Suami, S. Ogawa, H. Sano, and N. Kato 1992

The Dehalogenation of Organic Halides by Means of Iron(II) Chloride in Dimethyl Sulfoxide ..... T. Shirafuji, Y. Yamamoto, and H. Nozaki 1994

Applied

Methylation of Phenol over Metallic Oxides ..... T. Kotanigawa, M. Yamamoto, K. Shimokawa, and Y. Yoshida 1961

Short Communications

The Rearrangement of 2-Hydroxy-3,4-bis(diphenylmethylene)cyclobutanone to the Enolizable Cyclobutenedione, 3,4-Bis(diphenylmethyl)-3-cyclobutene-1,2-dione *via* Methylenecyclobutenone Intermediate ..... F. Toda, N. Ooi, Y. Takehira, and K. Akagi 1998

Ambident Ion. IV. *C*-Alkylation of Enolate Anion Accompanying Retention of Configuration ..... M. Suama, T. Sugita, and K. Ichikawa 1999

The Reaction of Photo-excited Phenanthraquinone with Hydrogen Donors. The Behaviors of the Resulting 1,2-Photoadducts Studied by the CIDNP Technique ..... K. Maruyama, T. Otsuki, H. Shindo, and T. Maruyama 2000

The Carbonylation of Alkyl Halide with Carbon Monoxide in the $SbCl_5$-Liquid Sulfur Dioxide System ..... M. Nojima, K. Tatsumi, and N. Tokura 2001

Dimerization of C_2D_4 Catalyzed by Bis(triphenylphosphine)σ-1-naphthyl Nickel(II) Bromide ..... K. Maruyama, T. Kuroki, T. Mizoroki, and A. Ozaki 2002

Kinetics of Chelate Formation between Lanthanum(III) and 4-(2-Pyridylazo)-resorcinol ..... T. Onodera and M. Fujimoto 2003

The Measurement of Water and Other Oxygen-containing Products in the Radiolysis of Cyclohexane Solutions of Nitrous Oxide ..... K. Takeuchi, K. Shinsaka, S. Takao, Y. Hatano, and S. Shida 2004

The Polarography of the Tricyano Cobalt(III) Complexes ..... N. Maki and K. Ohkawa 2005

Prominent Catalysis of Sodium 2- or 4-Pyridinolate in the Aminolysis of Esters ..... N. Nakamizo 2006

No. 8

General and Physical

Adsorption of Benzoic Acid on Gold in Perchlorate Solutions ..... K. Katoh and G. M. Schmid 2007

Anisotropy of the Indirect Nuclear Spin-Spin Coupling Constants. III. Problems in the Structure Determination of the Molecule Dissolved in a Nematic Solvent ..... H. Nakatsuji, I. Morishima, H. Kato, and T. Yonezawa 2010

Steric Effects in Azo Compounds. The Electric Dipole Moments and the Absorption Spectra of Azobenzene Derivatives ..... S. Yamamoto, N. Nishimura, and S. Hasegawa 2018

A Theoretical Study of the Electronic Structures of Several Methyl Compounds of Group I, II, and III Elements ..... K. Ohkubo, H. Shimada, and M. Okada 2025

Vibrational Analysis of the 2400—2800 Å Bands of 1,2,3- and 1,3,5- Trimethylbenzenes in Vapour Phase ..... V. N. Verma, K. P. R. Nair, and D. K. Rai 2031

Solid Complex Formation of Aminomalonic Acid with Glycine ..... T. Kinugasa, J. Nishijo, G. Hashizume, and I. Imanishi 2035

Photomicroscopic Observation of Dispersion State of Droplets in Flowing Emulsion ..... K. Suzuki and T. Watanabe 2039

Proton Spin-Lattice Relaxation Studies of Intermolecular Interactions in Acetic Acid Solution ..... K. Sato and A. Nishioka 2042

The Protonation of Aromatic Hydrocarbon Radical Anions. II. Interpretations of the Rate Constants in Terms of HMO Calculations ..... S. Hayano and M. Fujihira 2046

The Effect of Water on the Reduction Potentials of Some Aromatic Compounds in the DMF-Water System ..... S. Hayano and M. Fujihira 2051

The Interpretation of the EPR Spectra of the Amorphous State of Group VIB Hydride Radicals by Means of the Gas-phase Data ..... Y. Kotake, M. Ono, and K. Kuwata 2056

The Electronic Structures of *trans* and *cis* Isomers of Some Halogenoethylenes ..... H. Kato, K. Hirao, H. Konishi, and T. Yonezawa 2062

Measurements of Total Cross Sections for the Scattering of Potassium Atoms by Rare Gases ..... I. Kusunoki 2067

Tritium Fractionation on the Crystal Growth of Sodium Sulfate Decahydrate from Its Tritiated Aqueous Solution ..... H. Tanaka and H. Negita 2075

Studies on the Interaction between Long Chain Alcohols and Alkyl Sulfates. I. Molecular Association between Long Chain Alcohols and Corresponding Alkyl Sulfates .. Y. Moroi, K. Motomura, and R. Matuura 2078

^{81}Br Nuclear Quadrupole Resonance of Modifications of Titanium Tetrabromide ..... T. Okuda, Y. Furukawa, and H. Negita 2083
Interaction between TCNQ and Surfactant. III. The Effect of Light on the Spectra of TCNQ Solubilized in Surfactant Solutions..... S. Muto, K. Deguchi, Y. Shimazaki, Y. Aono, and K. Meguro 2087
The Gas-Phase Radiolysis of Cycloheptatriene ..... K. Nakamura, S. Takamuku, and H. Sakurai 2090
The Crystal Structure of the 2 : 3 Complex of Zinc Phthalocyanine and *n*-Hexylamine ..... T. Kobayashi, T. Ashida, N. Uyeda, E. Suito, and M. Kakudo 2095
Rare-Gas-sensitized Radiolysis of Toluene..... Y. Yamamoto, S. Takamuku, and H. Sakurai 2104
Heats of Immersion of Silica-alumina in Nonaqueous Solvents ..... M. Miura, T. Iwaki, M. Komuro, K. Tanaka, and K. Ito 2107
A Simple Relation among the Energy Differences between Conformers of $XH_2C\text{-}CH_2Y$, $C_6H_{11}X$, $C_6H_{11}Y$, and *trans*-1,2-$C_6H_{10}XY$ ..... E. Fujimoto, K. Kozima, and Y. Takeoka 2110
The Coadsorption of Nitric Oxide, Nitrogen, and Oxygen on Rhenium ..... T. Tamura 2116
Magnetic Properties of Some Iminoxyl Polyradicals. II. TEMPOP Triradical and TEMPOS Tetraradical ..... A. Nakajima, H. Ohya-Nishiguchi, and Y. Deguchi 2120

Notes:

The SCF MO Calculation of the *g* Value for the H_2NO Radical ..... T. Morikawa, O. Kikuchi, and K. Someno 2256
The Roles of Thiyl Radicals in the Radiolysis of a Mixed Aqueous Solution of Cysteine and Formate—Hydrogen Abstraction from Formate and the Formation of Carbon Dioxide ..... M. Morita, K. Sasai, M. Tajima, and M. Fujimaki 2257
Initiation Mechanism of Radiation-Induced Ionic Polymerization of Isobutene Studied by Ion Cyclotron Resonance ..... M. Irie, K. Aoyagi, K. Hayashi, J. Sohma, and T. Miyamae 2261
Dipolar Interaction in TEMPAD Biradical ..... J. Yamauchi, T. Fujito, A. Nakajima, H. O. Nishiguchi, and Y. Deguchi 2263
Magnetic Susceptibilities of Ionic Electron-Donor-Acceptor Complexes ..... M. Kinoshita, T. Mizoguchi, and H. Akamatu 2267
Magnetic Properties of Aromatic Hydrocarbon-Alkali Metal Salts. II. Anthracene-Alkali Metal Salts ..... K. Masuda, H. Ohya-Nishiguchi, Y. Deguchi, and H. Takaki 2269
On the Crystal Structure of Methane in Phase II ..... M. Hashimoto, M. Hashimoto, and T. Isobe 2272
The Radiolysis of Liquid Nitrogen Containing Hydrocarbons. III. Nitrile Formation from Solutions of Alkanes ..... T. Oka, T. Shindo, and S. Sato 2274
On Liquefaction Caused by the Trituration of Pairs of Solid Compounds ..... T. Katsurai, S. Matsuo, and K. Sone 2276

Analytical and Inorganic

Spectrophotometric Determination of Anions by Solvent Extraction with Metal Chelate Cations. XIV. Determination of Iodide Ions with Tris(1,10-phenanthroline)iron(II) ..... Y. Yamamoto, T. Tarumoto, and M. Tsubouchi 2124
Studies of 8-Mercaptoquinoline as Chelating Agents. I. Sodium Salt of 8-Mercaptoquinoline ..... Y. Mido and E. Sekido 2127
Studies of 8-Mercaptoquinoline as Chelate Agents. II. Infrared Absorption Spectra of Its Divalent Metal Chelates ..... Y. Mido and E. Sekido 2130
The Infrared Spectra and Normal Coordinate Treatments of $L_3Sn\text{-}Mn(CO)_5$ (L=Cl, Br, CH_3, and C_6H_5) ..... S. Onaka 2135
Studies on Cobaloxime Compounds. V. Oxidation of Formaldehyde with Cobaloximes and Aquocobalamin ..... Y. Hohokabe and N. Yamazaki 2142
Studies on Cobaloxime Compounds. VI. Decomposition of Formic Acid with Cobaloximes and Cobalamines ..... Y. Hohokabe and N. Yamazaki 2145
The Separation and Concentration of Acetylacetonato Chelates Using a Benzene Column ..... K. Maruyama and M. Mashima 2147
Syntheses of a New Series of Transition Metal Chelates of Diphenylphosphinothioylthiourea Anion ..... I. Ojima, T. Onishi, T. Iwamoto, N. Inamoto, and K. Tamaru 2150
Pd(II) Complexes with 2,2′-Diaminobiphenyl ..... S. Onaka 2154
Fourier Analysis of Alternating Current Polarography: Amplitude and Phase of Fundamental and Second Harmonic AC Polarographic Waves..... H. Kojima and S. Fujiwara 2158

NOTE:

The Spectrophotometric Determination of Nickel(II) in a Solution Containing Cobalt(II), Utilizing EDTA and Bismuth as the Masking Reagent and the Demasking Reagent ..... K. YAMAMOTO, K. OHASHI, and I. HIRAKO 2254

Organic and Biological

The Acylation of *bz*-Hydroxy- and *bz*-Methoxy-2,3-dimethylbenzofurans and the Synthesis of Furobenzopyranone Derivatives ..... Y. KAWASE, S. YAMAGUCHI, N. OKI, and F. OKUMURA 2163

Some Displacement Reactions of Neopentyl Type Bromide Derived from Thujopsene ..... M. ITO, K. ABE, H. TAKESHITA, and M. YATAGAI 2168

Tetraaminoethylenes. I. The Preparation and Some Reactions of Tetrapiperidino- and Tetramorpholinoethylene ..... O. TSUGE, K. YANAGI, and M. HORIE 2171

Optical Activity of Bis-1,1′-spiroindanes. II. Absolute Configuration of Optically Active 5,5′- and 6,6′-Disubstituted-bis-1,1′-spiroindanes and Their Circular Dichroism Spectra ..... S. HAGISHITA, K. KURIYAMA, K. SHINGU, and M. NAKAGAWA 2177

The Reaction of Nitriles with Phosgene. V. Cyclization Reactions of *N*-(α-Chlorobenzylidene)carbamoyl Chloride ..... S. YANAGIDA, M. YOKOE, M. OHOKA, and S. KOMORI 2182

Photochemical Rearrangement of *N*-Substituted Benzylanilines ..... Y. OGATA and K. TAKAGI 2186

A Facile Desulfurization Reaction with a Combination of Two Kinds of Metals in Acidic Media. The Synthesis of Hypoxanthine ..... N. NAKAMIZO, K. SHIOZAKI, S. HIRAI, and S. KUDO 2192

Synthesis of Poly Substituted *cis*-Hydrindanes ..... K. YAMAMOTO, T. SOHDA, I. KAWASAKI, and T. KANEKO 2197

The Photochemistry of Heterocyclic Compounds. IV. The Mechanism of the Photodecomposition of Alloxan Monohydrate. The Effects of Solvents ..... S. WAKE, T. MAWATARI, Y. OTSUJI, and E. IMOTO 2202

Studies on Stable Free Radicals. V. Reactivity of a Stable Free Radical, 2,2,6,6-Tetramethyl-4-oxopiperidine-1-oxyl ..... T. YOSHIOKA, S. HIGASHIDA, S. MORIMURA, and K. MURAYAMA 2207

The Synthesis of 1-Phenylazulene and 2-Phenylazulene from the Troponoid Compound ..... T. NOZOE, K. TAKASE, and S. FUKUDA 2210

The Synthesis of 7-Isopropyl-2,4-dimethylazulene(Se-Guaiazulene) from 4-Isopropyltropolone ..... T. NOZOE, K. TAKASE, and S. FUKUDA 2215

The Bromination of 2-Methoxytropone and Its Bromo Derivatives ..... T. NOZOE, K. TAKASE, and M. YASUNAMI 2218

Aminocyclitols. XXVI. A Synthesis of Aminocyclopentanetetrols ..... T. SUAMI, Y. SAKOTA, K. TADANO, and S. NISHIYAMA 2222

Electronic Spectra of Square-Planar Bis(tertiary phosphine)dialkynyl Complexes of Nickel(II), Palladium(II), and Platinum(II) ..... H. MASAI, K. SONOGASHIRA, and N. HAGIHARA 2226

Linear Conjugated Systems Bearing Aromatic Terminal Groups. IV. The Syntheses of Some Diarylacetylenes ..... S. AKIYAMA, K. NAKASUJI, and M. NAKAGAWA 2231

Linear Conjugated Systems Bearing Aromatic Terminal Groups. V. Syntheses and Electronic Spectra of 2,2′-, 3,3′-, and 9,9′-Diphenanthrylpoly-ynes ..... S. AKIYAMA and M. NAKAGAWA 2237

The Reaction of Dihalotetramethylbenzenes with Fuming Nitric Acid as a New Convenient Route to Some Dihalotrimethylbenzylic Compounds ..... H. SUZUKI, K. NAKAMURA, and M. TAKESHIMA 2248

NOTES:

Electrooxidation of α-Methoxy-γ,γ-Dimethylaconic Acid ..... S. TORII, T. FURUTA, T. MIYAOKA, H. SAKO, H. TANAKA, and K. UNEYAMA 2258

Bis(triphenylphosphine)-π-cyclopentadienyl-cobalt(I) and -rhodium(I) ..... H. YAMAZAKI and N. HAGIHARA 2260

Preparative and Structural Studies of Kostanecki's Compound ..... Y. YAMAMOTO, K. KUNO, and H. NOZAKI 2265

Study on Scrambling in Decomposition of Labeled Acetyl Benzoyl Peroxide ..... M. KOBAYASHI, H. MINATO, and R. HISADA 2271

Short Communications

Photodecomposition of Azidoformate in Alkyl Sulfides. I ..... W. ANDO, N. OGINO, and T. MIGITA 2278

3-*O*-Benzyl-5-deoxy-5-(ethylphosphinyl)-D-xylopyranose ..... S. INOKAWA, Y. TSUCHIYA, K. SEO, H. YOSHIDA, and T. OGATA 2279

The Formation of $N_3P_3(NH_2)_6 \cdot H_2O$ and $N_3P_3(NH_2)_6 \cdot HCl$ from the Reaction Product between $(NPCl_2)_3$ and Ammonia ..... E. KOBAYASHI 2280

Nuclear Magnetic Resonance Spectra of Carbanions. VIII. α-Picalyllithium ..... K. KONISHI, K. TAKAHASHI, and R. ASAMI 2281

Oxidation of Propylene over Cu(II)-Y Molecular Sieve under High Steam Concentration ..... I. Mochida, S. Hayata, A. Kato, and T. Seiyama 2282
A Novel Bis(dimethylglyoximato)cobalt(III) Complex with a *cis*-Configuration ..... N. Maki 2283
Phosphorylation by Oxidation-Reduction Condensation. Preparation of Active Phosphorylating Reagents ..... T. Mukaiyama and M. Hashimoto 2284
A Useful Method for Reductive Fission of Sulfides and Its Application to Carbon-Carbon Bond Formation ..... T. Mukaiyama, K. Narasaka, K. Maekawa, and M. Furusato 2285
The Photoinduced Substitution Reaction of 2-Quinolinecarbonitrile ..... N. Hata, I. Ono, and S. Ogawa 2286
A Stereospecific Racemization Catalyst for Amino Acid ..... K. Hirota and Y. Izumi 2287
Hydrogen Abstraction of Excited Benzophenone in *N,N*-Dimethylaniline and 2-Methyltetrahydrofuran Solution at Low Temperature ..... S. Arimitsu and H. Tsubomura 2288
The Production of New Carbonyl- and Thiocarbonyl-stabilized Phosphonium Ylids by the Reaction of the Triphenylphosphonium Methylid with *O*-Alkylxanthates ..... H. Yoshida, H. Matsuura, T. Ogata, and S. Inokawa 2289
The Single-crystal Absorption Spectra of the Basic Rhodo Chromic Perchlorate ..... A. Urushiyama, M. Nakahara, and Y. Kondo 2290
1,1′-Dihydroxy-2,2′-azonaphthalene-4,4′-disulfonic Acid as a New Reagent for Magnesium ..... Y. Noda and H. Miyata 2291

No. 9

General and Physical

The Magneto-Optical Rotatory Dispersion of Benzophenone in the $S_0 \rightarrow T(n-\pi^*)$ and the S_0-S_1 $(n-\pi^*)$ Absorption Regions ..... Y. Takenoshita and Y. Kanda 2293
Cleaning Effects of the Reactant in the Liquid-phase Isomerization of *m*-Xylene over a Silica-Alumina Catalyst under Pressure ..... H. Takaya, N. Todo, T. Hosoya, T. Minegishi, M. Yoneoka, and H. Ōshio 2296
Linear Antiferromagnetic Interaction in Organic Free Radicals ..... J. Yamauchi 2301
An Acoustical Study of the Kinetics of Intermolecular Hydrogen Bonding and the Applicability of the Hammett Rule ..... T. Yasunaga, S. Nishikawa, and N. Tatsumoto 2308
Electronic Structures of Tris(2,2′-bipyridyl) Complexes of Transition Metals in Lower Oxidation States ..... I. Hanazaki and S. Nagakura 2312
Electron-transfer Phenomena in Some Three-dimensional Complex Thiocyanate Semiconductors ..... M. Hashimoto, S. Kawai, and R. Kiriyama 2322
Elimination Reaction on Solid Acid Catalysts. IV. A δ_R LFER Study of the Esterification of Alcohols with Carboxylic Acids over Solid Acid Catalysts ..... I. Mochida, Y. Anju, A. Kato, and T. Seiyama 2326
Mixed Monolayers of Poly(methyl acrylate) and Its Saponified Polymer ..... S. Hironaka, T. Kubota, and K. Meguro 2329
Topological Index. A Newly Proposed Quantity Characterizing the Topological Nature of Structural Isomers of Saturated Hydrocarbons ..... H. Hosoya 2332
An Investigation of the Decomposition of the Intermediate Ions Produced by Electron Impact. I. $C_7H_7^+$ Ions from Several Substituted Toluenes ..... S. Tajima, Y. Niwa, M. Nakajima, and T. Tsuchiya 2340
Microwave Spectrum, Barrier Height to Internal Rotation of Methyl Group, and Dipole Moment of 3-Methylfuran ..... T. Ogata and K. Kozima 2344
CNDO Calculations of Electronic Structures and Spectra of Nonalternant Conjugated Hydrocarbons ..... A. Tajiri, N. Ohmichi, and T. Nakajima 2347
Molecular Structure of Piperazine as Studied by Gas Electron Diffraction ..... A. Yokozeki and K. Kuchitsu 2352
Structures of Norbornane and Norbornadiene as Determined by Gas Electron Diffraction ..... A. Yokozeki and K. Kuchitsu 2356
Magnetic and Thermal Properties of Crystals Including Isolated Clusters. II. Heat Capacity of $Co_3(C_5H_5)_3S_2$ from 15 to 270 K and Mechanism of Phase Transition ..... M. Sorai, A. Kosaki, H. Suga, S. Seki, T. Yoshida, and S. Otsuka 2364
A General Matrix Method for Treating Elastic Constants of Molecular Crystals; Application to Orthorhombic Polyethylene ..... Y. Shiro and T. Miyazawa 2371
A Fermi Resonance with ν_6 of Acetonitrile ..... H. Matsuura 2379

NOTES:

Raman, IR, NMR, and NQR of Chlorofluorosilanes.....K. HAMADA, G. A. OZIN, and E. A. ROBINSON 2555

Proton and Nitrogen-14 Nuclear Magnetic Resonance Study of Pyridine-Water System.....Y. KASUGAI, Y. ARATA, and S. FUJIWARA 2557

Nuclear Magnetic Resonance Spectra of Carbanions. VII. 1,1,4,4-Tetraphenylbutadiene Dianion.....M. USHIO, M. TAKAKI, K. TAKAHASHI, and R. ASAMI 2559

The Charge-transfer Complexes of Metal Chelates of 8-Quinolinol with Various Halogen-substituted *p*-Benzoquinones..... Y. IIDA 2564

A Remark on the Applicability of the CNDO Calculation to the Chemical Reactivity Theory .....H. FUJIMOTO, S. SUGIHARA, S. YAMABE, and K. FUKUI 2565

Analytical and Inorganic

The Formation Constants and Composition of Tetraethylenepentaminehеptaacetato Nickel(II) Complexes Measured by a Potentiometric Titration Method .....Y. MASUDA, Y. HIRAI, and E. SEKIDO 2381

Polarographic Study of the Rates of the Dissociation Reactions of the Cobalt(II)-Acetylacetonate Complex and of the Nickel(II)-Acetylacetonate, -Glutamate, -Aspartate, and -Iminodiacetate Complexes.....M. KODAMA, H. NUNOKAWA, and N. OYAMA 2387

Mixed-ligand Complexes of Copper(II). I. An ESR Study of Coordination Bonding.....H. YOKOI, M. OTAGIRI, and T. ISOBE 2395

Mixed-ligand Complexes of Copper(II). II. A Study of Dismutation Constants.....H. YOKOI, M. OTAGIRI, and T. ISOBE 2402

The Relation between the Volatilization Rates of Chlorine and Bromine Compounds from Volcanic Rocks on Heating..... K. TAKAHASHI 2408

The Crystal Structure of Perchlorato-bis(2,2′-bipyridine)copper(II) Perchlorate, $[Cu(ClO_4)(bipy)_2]ClO_4$.....H. NAKAI 2412

Stability Constants of Alkaline Earth Metals with *o*-Arsono-*o*′-hydroxy Azo Compounds..K. KIINA and K. TÔEI 2416

Analytical Study of the Lead Ion-selective Ceramic Membrane Electrode....H. HIRATA and K. HIGASHIYAMA 2420

The Preparation and Absorption Spectra of the Geometrical Isomers of Carbonatoglycinatodiammine-cobalt(III)..... S. KANAZAWA and M. SHIBATA 2424

Functional Group Analysis by Gas Chromatography. IV. Pyrolytic Reaction of Carboxylic Acids in Sulfur Vapor..... T. HARA and S. ITO 2427

The Synergic Solvent Extraction of Rare Earths. II. The Absorption Spectra of Neodymium-, Holmium-, and Erbium-TTA-TOPO Complexes with ClO_4^-, CNS^-, NO_3^-, and Cl^- Ions..T. TAKETATSU and N. OHKURA 2430

The Chemical Behavior of Low Valence Sulfur Compounds. VII. The Oxidation of Ammonium Sulfide and Ammonium Sulfite with Compressed Oxygen in Aqueous Ammonia Solution....K. NAITO and T. OKABE 2434

NOTE:

Studies of Ethylenediamine-*N,N*′-diacetatocobalt(III) Complexes. II. The Preparation and Identification of Ethylenediamine-*N,N*′-diacetatocobalt(III) Complexes, with Some Anions as the Additional Ligand.....K. KURODA and K. WATANABE 2550

Organic and Biological

Rearrangement and Decomposition of Phosphoranyl Peroxides Produced *in situ* from Alkylidenephosphoranes and *t*-Alkylperoxy Anions..... K. YAMADA, K. AKIBA, and N. INAMOTO 2437

The Preparation of Geometrical Isomers of *β*-Nitrostyrene and Their Addition Reactions with Ethanol.....K. YAMAMURA, S. WATARAI, and T. KINUGASA 2440

The Preparation of Amino-*s*-triazines with Amino- or Nitrophenyl Groups.....Y. YUKI, T. KAKURAI, and T. NOGUCHI 2444

Syntheses and Thermal Isomerizations of Bicyclo[3.2.2]nona-2,6,8-triene and Its Benzo Analog.....T. TSUJI, H. ISHITOBI, and H. TANIDA 2447

The Reactions of *β*-Ketosulfonium Salts with Sulfenamide Derivatives.....T. MUKAIYAMA, K. HOSOI, S. INOKUMA, and T. KUMAMOTO 2453

Effect of Ring Size on the Acid-Catalyzed Reduction of Cyclic Sulfoxides by Iodide Ion.....S. TAMAGAKI, M. MIZUNO, H. YOSHIDA, H. HIROTA, and S. OAE 2456

The Bromination of 4-Acetyltropolone.....K. Takase, K. Sasaki, K. Shimizu, and T. Nozoe 2460

Synthesis and Properties of Two Annelated Annulenes.....K. Endo, Y. Sakata, and S. Misumi 2465

Di- and Trimethylenebis(ethylphenacyl)sulfonium Ylides.....S. Kato, H. Ishihara, M. Mizuta, and Y. Hirabayashi 2469

The Acid-catalyzed Reaction of Isocyanide with Oxetane.....T. Saegusa, N. Taka-ishi, and Y. Ito 2473

Decomposition of *m*-Nitrobenzenesulfonyl Peroxide in Several Solvents.....Y. Yokoyama, H. Wada, M. Kobayashi, and H. Minato 2479

A New Route to Polycondensed Aromatics: Photolytic Formation of Triphenylene and Dibenzo[*fg*,*op*]naphthacene Ring Systems.....T. Sato, S. Shimada, and K. Hata 2484

Aromatic Bromination by the Use of Organic and Inorganic Thallium Salts.....S. Uemura, K. Sohma, M. Okano, and K. Ichikawa 2490

A New Rearrangement Reaction of Azoxybenzene with Arenesulfonyl Chloride.....S. Oae, T. Maeda, S. Kozuka, and M. Nakai 2495

Phenylazo *p*-Tolyl Sulfone as a Source of Phenyl Radical.....M. Kobayashi, H. Minato, M. Kojima, and N. Kamigata 2501

Studies of Azo Colors. VIII. The Azo-coupling Reactions of Active Methylene Compounds.....Y. Hashida, M. Kobayashi, and K. Matsui 2506

Photocycloaddition of Thiocarbonyl Compounds to Multiple Bonds. VII. The Reaction of Thiobenzophenone with Acetylenic Compounds.....A. Ohno, T. Koizumi, and Y. Ohnishi 2511

Selective Cleavage of Cysteine Peptides.....T. Inui 2515

Studies on Aminosugars. XXVII. Synthesis of Several Glycosides Containing (6-Amino-6-deoxy-D-glucopyranosyl)-2-deoxystreptamine.....Y. Nishimura, T. Tsuchiya, and S. Umezawa 2521

Studies on Aminosugars. XXVIII. Synthesis of β-L-Idopyranosides through the Corresponding 5-Enopyranosides.....D. Ikeda, T. Tsuchiya, and S. Umezawa 2529

Intramolecular Fluorescence Quenching Effect by *p*-Nitrophenyl and *p*-Nitrophenoxy Groups....K. Mutai 2537

Thermal Decomposition of Benzoyl *p*-Toluenesulfonyl Peroxide....R. Hisada, H. Minato, and M. Kobayshi 2541

Notes:

Synthesis of Three New Azaparacyclophanes Containing Four Benzene Rings.....Y. Urushigawa, T. Inazu, and T. Yoshino 2546

Reaction Rates in Binary Mixed Solvents. VI. An Sn Ar Reaction in a Methanol-Acetonitrile Mixture.....Y. Kondo, K. Uosaki, and N. Tokura 2548

Über die Umsetzungen von Ammonium Tetracarbonyl Kobaltat mit Aromatischen Aldehyden.....I. Rhee, M. Ryang, und S. Tsutsumi 2552

Synthesis of Carboxylic Acid Derivatives of Adenine and Theophylline.....K. Kondo, M. Miyata, and K. Takemoto 2554

A Convenient Method for Detection of NH Containing Compounds on Thin Layer Chromatograms.....Y. Ariyoshi, N. Sato, H. Zenda, and K. Adachi 2558

A Naturally-occurring Bromo-compound Aplysin-20 from *Aplysia kurodai*.....S. Yamamura and Y. Hirata 2560

The Mercury-Photosensitized Reaction of Cyclooctene Vapor..S. Takamuku, K. Moritsugu, and H. Sakurai 2562

Short Communications

Friedelin and Related Compounds. Part XI. Identification of a Saturated Nor-Aldehyde from Ultraviolet Irradiation of Friedelin.....R. Stevenson, T. Tsuyuki, R. Aoyagi, and T. Takahashi 2567

Molecular-weight Determination by the Vapor-pressure Depression Method using Gas Chromatography.....Y. Yoshikawa, K. Arita, A. Inaba, and K. Sasaki 2568

The Facile Reduction of Acyl Halides into Aldehydes *via* Acylcarbonylferrates.....Y. Watanabe, T. Mitsudo, M. Tanaka, K. Yamamoto, T. Okajima, and Y. Takegami 2569

Mössbauer Spectroscopic Studies of the Oxidation State of ^{57}Fe Produced in ^{57}Co-doped and γ-Irradiated Trisacetylacetonatoiron(III).....H. Sano, K. Sato, and H. Iwagami 2570

Comments

Explosion during the Preparation of Ethylphenyl Thallic Acetate Perchlorate.....S. Uemura, Y. Ikeda, O. Itoh, and K. Ichikawa 2571

No. 10

General and Physical

Photoconduction of Polystyrylpyrimidines ..... R. Hirohashi, Y. Hishiki, and M. Haruta 2573

Conformation of α-Aminobutyric Acid in Aqueous Solution ..... T. Akimoto, M. Tsuboi, M. Kainosho, F. Tamura, A. Nakamura, S. Muraishi, and T. Kajiura 2577

The Measurement of Reaction Rates under Pressure by using a Manganin Pressure Gauge .... T. Moriyoshi 2582

An MO Interpretation of the Chemical Shifts of Inner-shell Electrons ..... H. Kato, K. A. Ishida, H. Nakatsuji, and T. Yonezawa 2587

Stochastic Formulation of Entropy Production due to Second-Order Reaction ..... K. Ishida 2591

Catalytic Oxidation over Molecular Sieves Ion-exchanged with Transition Metal Ions. IV. The Oxidative Dehydrogenation of Cyclohexane ..... I. Mochida, T. Jitsumatsu, A. Kato, and T. Seiyama 2595

Oxidation of *s*-Butyl Alcohol by Cerium(IV) ..... D. L. Mathur and G. V. Bakore 2600

Charge-Transfer Interaction and Fluorescence in Some Tetracyanobenzene Complexes ..... T. Kobayashi, K. Yoshihara, and S. Nagakura 2603

A Theoretical Consideration of the Electron-scavenging Process in Liquid Hydrocarbons. II. Pulse Irradiation ..... H. Yamazaki and K. Shinsaka 2611

The Estimation of the Surface Properties of Metal Oxides by the Use of TCNQ Adsorption ..... H. Hosaka, T. Fujiwara, and K. Meguro 2616

Effect of Phase on Hot Hydrogen Atom Abstraction Reaction with Solid Isobutane as Studied by Electron Spin Resonance Spectroscopy ..... T. Wakayama, T. Miyazaki, K. Fueki, and Z. Kuri 2619

The Reactions of Mobile Electrons in the Frozen Solution of Ethylene Glycol-Water at 77°K ..... T. Sasaki and S. Ohno 2626

Gel Filtration of Aqueous Sodium Dodecyl Sulfate ..... H. Suzuki and T. Sasaki 2630

Electron Spin-Spin Interaction in the Multiplet Ground State of Non-planar Methylene Derivatives ..... J. Higuchi 2634

Molecular Structure and Phase-shift of Tetramethyllead as Studied by Gas Electron Diffraction ..... T. Oyamada, T. Iijima, and M. Kimura 2638

Molecular Structure of Dimethyltin Dichloride as Studied by Gas-electron Diffraction ..... H. Fujii and M. Kimura 2643

A New Method of Solubility Determination of Hydrolyzing Solute—Solubility of Benzyl Chloride in Water ..... R. Ohnishi and K. Tanabe 2647

A Further Study of the Scavengeable Electron Yield in the Radiolysis of Hydrocarbon Glasses at −196°C ..... T. Kimura, K. Fueki, and Z. Kuri 2650

The Crystal Structure of Ascochlorin *p*-Bromobenzenesulfonate ..... Y. Nawata and Y. Iitaka 2652

Electrochemiluminescence of Aromatics in *N,N*-Dimethylformamide ..... K. Mori, N. Yamamoto, and H. Tsubomura 2661

The Crystal Structure of 3-(10,11-dihydro-5*H*-dibenzo[*a,d*]cycloheptен-5-ylidene)-1-ethyl-2-methylpyrrolidine Hydrobromide ..... Y. Tokuma, H. Nojima, and Y. Morimoto 2665

The Decomposition of Energized Ethylene Formed in the Photolyses of Alkanes ..... Y. Ogata, K. Obi, H. Akimoto, and I. Tanaka 2671

Nuclear Quadrupole Resonance Study of Charge Transfer Complexes: Chloranil Complexes ..... H. Chihara and N. Nakamura 2676

Correlation between the Transition Temperature and the Rotational Potential Barrier in Plastic Crystals ..... H. Chihara and Y. Koga 2681

ESR Studies of Methyl Radicals Stabilized on Silica-gel Surfaces .... S. Kubota, M. Iwaizumi, and T. Isobe 2684

Notes:

Electrical Conductivity in Crystalline Hexamethylbenzene ..... K. Kurematsu, N. Kaneko, and S. Matsumoto 2845

The Crystal Structure of *N*-Methylphenothiazine ..... N. I. Wakayama 2847

Self-Diffusion Coefficients of Carbon Tetrachloride and Cyclohexane in the Carbon Tetrachloride-Cyclohexane System ..... A. Nishi, Y. Kamei, and Y. Oishi 2855

The Gas-Phase Radiolysis of Cyclopropane ..... J. Tanaka, Y. Hatano, and S. Shida 2860

A MO-theoretical Account for the Molecular Structure of the Grignard Reagent ..... K. Ohkubo and F. Watanabe 2867

On the Enantiotropic Transitions in the Phenanthrene Picrate ..... Y. Matsunaga 2868

Electronic Structures of Dialkyl Peroxides ..... K. Ohkubo and M. Okada 2869

Basicities of Formamide, Acetamide, and Their Alkyl Derivatives in Aqueous Solution ..... G. Wada and T. Takenaka 2877

Analytical and Inorganic

Gas Chromatography of Aluminum, Gallium, and Indium β-Diketone Chelates ..... K. Utsunomiya 2688

The Separation of Aluminum from Iron by the Zone-melting of Their Complexes ..... M. Mashima and K. Maruyama 2693

Studies of Aliphatic Hydroxycarboxylic Acids as Antioxidant. V. Complexes of Copper(II) with *erythro*- and *threo*-2-Methyltartaric, and *meso*- and *threo*-2,3-Dimethyltartaric Acids ..... K. Horikawa and S. Masuyama 2697

The Electronic Character of the π-Allylic Group of π-Allylic Palladium Complexes ..... Y. Takahashi, H. Akahori, S. Sakai, and Y. Ishii 2703

The Determination of the Amount of Oxygen in Molten Copper-Nickel and Copper-Silver Alloys by the EMF Method ..... I. Tsukahara 2706

The Chelating Behavior of 1-(2-Phosphonophenylazo)-2-hydroxynaphthalene-3,6-disulfonic Acid with Alkaline Earth Metals ..... K. Kina, H. Miyata, and K. Tôei 2710

The Chelate Formation of (*o*-Substituted Phenylazo)chromotropic Acids with Alkaline Earth Metals. II .... T. Katayama, H. Miyata, and K. Tôei 2712

The Stability of Fused Rings in Metal Chelates. VIII. Solution Equilibria of the Copper(II) Complexes of Glycinamide and Related Compounds ..... O. Yamauchi, H. Miyata, and A. Nakahara 2716

The Crystal Structure of $(+)_{589}$-Dicyanobis(ethylenediamine)cobalt(III) Chloride Monohydrate ..... K. Matsumoto, S. Ooi, and H. Kuroya 2721

Notes:

A Polarographic Study of the Rates of the Dissociation Reactions of Nickel(II)-Ethylenediaminemonoacetate and -*N*-(2-Hydroxyethyl)ethylenediamine Complexes ..... M. Kodama and N. Oyama 2849

Preparation and Properties of Metal Complexes in Non-aqueous Solutions. III. Preparation of Tetrammine-monoethylenediamine- and -monopropylenediamine-cobalt(III) Complexes in Dimethyl Sulfoxide ..... H. Yoneda, M. Muto, and K. Tamaki 2863

Organic and Biological

The Polymerization of Silacyclopentene and -pentane Derivatives ..... T. Araki, D. Terunuma, T. Sato, N. Nagai, M. Furuichi, and S. Nakamura 2725

Electrolyses of 2,2-Dichloro-3-phenylcyclopropanecarboxylic Acids in Hydroxylic Solvents with a Platinum Anode ..... A. Takeda, S. Wada, and Y. Murakami 2729

The 3020-cm^{-1} Band in the Infrared Absorption Spectra of Methyl Esters of Unsaturated Higher Fatty Acids ..... Y. Hirabayashi, N. Kato, M. Mizuta, and H. Ishihara 2733

The Stereochemistry of the Reduction of 2-Substituted Cyclopentanones with Complex Aluminum Hydrides ..... Y. Senda, S. Mitsui, R. Ono, and S. Hosokawa 2737

p-Nitrophenyl Phosphates as Phosphorylating Reagents of Alcohols ..... K. -J. Chong and T. Hata 2741

Synthesis and Decomposition of Alkane- and Arenesulfonyl Aryl Disulfides ..... Y. Abe, T. Nakabayashi, and J. Tsurugi 2744

Studies of Benzoylsulfene. IV. The Cycloaddition Reactions of Benzoylsulfene with Cinnamylideneamines .. O. Tsuge and S. Iwanami 2750

Chemically Induced Dynamic Nuclear Polarization in the Photochemical Reaction of Phenanthraquinone with Hydrogen Donors. I. Kinetics of Nuclear Spin Polarization ..... K. Maruyama, H. Shindo, T. Otsuki, and T. Maruyama 2756

Chemical Constituents of *Alnus sieboldiana* (BETULACEAE). II. The Isolation and Structure of Flavonoids and Stilbenes ..... Y. Asakawa 2761

The Total Synthesis of (±)-Taxodione, A Tumor Inhibitor ..... T. Matsumoto, Y. Tachibana, J. Uchida, and K. Fukui 2766

The Solvent Effect on the Reaction Selectivity in the Chlorination of Propionic Acid ..... T. Nagai, Y. Horikawa, H. S. Ryang, and N. Tokura 2771

The Hofmann Rearrangement. IV. Kinetic Isotope Effect of *N*-Chlorobenzamide ..... T. Imamoto, S. -G. Kim, Y. Tsuno, and Y. Yukawa 2776

Synthetic Studies of Amino Acids by the Use of Copper Complex. II. The Condensation Reaction of *N*-Pyruvylideneglycinatocopper(II) Complexes with Various Aldehydes ..... T. Ichikawa, S. Maeda, T. Okamoto, Y. Araki, and Y. Ishido 2779

Studies of Hydroxy Amino Acids. I. Separation of Diastereoisomers of Threonine ..... Y. Ariyoshi and N. Sato 2787

Chemically Induced Dynamic Nuclear Polarization in the Photochemical Reaction of Phenanthraquinone with Hydrogen Donors. II. A Consideration of Unusual Nuclear Spin Polarization ..... H. Shindo, K. Maruyama, T. Otsuki, and T. Maruyama 2789

Solvent Effect in a Partial Asymmetric Synthesis. III. ..... K. Nishiyama and Y. Inouye 2795

A Convenient Method for the Preparation of Primary Amines by the Use of Bisbenzenesulfenimide and Bis-*p*-chlorophenylsulfenimide ..... T. Mukaiyama, T. Taguchi, and M. Nishi 2797

Synthesis of *cyclo*-Diglycyl-L-tyrosyl-diglycyl-L-tyrosyl and Hydrolysis by Chymotrypsin ..... M. Konishi, N. Yoshida, and N. Izumiya 2801

Aminocyclitols. XXVII. Preparation of Deoxyinosamines from *vibo*-Quercitol ..... T. Suami, S. Ogawa, K. Yabe, and M. Uchida 2804

The Reactions of Complexes of Thioboronite with Compounds Containing Carbon-Nitrogen Multiple Bond ..... T. Mukaiyama, S. Yamamoto, and K. Inomata 2807

Ambident Ion. VI. Kinetical and Thermodynamical Control in the Acylation of β-Dicarbonyl Compounds. Acetylation of Benzoylacetone and Benzoylacetonate Anion ..M. Suama, Y. Nakao, and K. Ichikawa 2811
Studies of Thioiminocarbonates. I. The Formation and Decomposition of *O*-Alkyl *S*-Aryl Thioiminocarbonates in the Reaction of Aryl Thiocyanates with Alcohols in the Presence of the Cyanide Ion..... ..... K. Tanaka, J. Hayami, and A. Kaji 2815
Preparation of *p*-Toluenesulfonyl Derivatives of *myo*-Inositol.....T. Suami, S. Ogawa, and S. Oki 2820
Selective *p*-Toluenesulfonylation of *myo*-Inositol Derivatives .....T. Suami, S. Ogawa, and S. Oki 2824
Synthesis and Conformational Studies of [7](2,6)Pyridinophanes .....S. Fujita and H. Nozaki 2827
Stereochemical Studies of Nonoterpene Compounds. XII. The Acid-Catalyzed Rearrangements of 2α-Bromo-10β-pinan-3-one .....T. Hirata and T. Suga 2833
Studies of *N*-Sulfinyl Compounds. VI. The Preparation of *N*-Sulfinylbenzamide and Its Reaction with Styrene Oxide.....O. Tsuge and S. Mataka 2836

Notes:

Preparation of Sodium *o*-(*N*-Hydroxy-*N*-phenylcarbamoyl)benzenesulfonate and Reactions with Metal Ions .....S. P. Bhargava and N. C. Sogani 2840
On the Reaction of Limonene with Chloranil .....S. Fujita, Y. Kimura, R. Suemitsu, and Y. Fujita 2841
The NMR Chemical Shifts of Aromatic Ring Protons. I. The Chemical Shifts of the Ring Protons of Mono-substituted Benzenes.....Y. Yukawa, Y. Tsuno, and N. Shimizu 2843
Tertiary Amine *N*-Oxide. XXXIII. Reaction of α,*N*-Diphenylnitrone with Acylating Reagents .... S. Tamagaki and S. Oae 2851
The Beckmann Rearrangement of *p*-Nitrobenzophenone Oxime with Thionyl Chloride .... T. Ogata, S. Tanaka, H. Yoshida, and S. Inokawa 2853
The Paal-Knorr Condensation of Acetonylacetone with 5-Aminopyrazoles .....I. Hori and M. Igarashi 2856
Photolytic Cyclodehydrogenation Reactions of [2.2]Metacyclophane by Means of Aryl Ketones and Alkoxyl and Thiyl Radicals .....T. Sato, K. Nishiyama, S. Shimada, and K. Hata 2858
Alkylation of 2,6-Lutidine .....I. Kawasaki, I. Kusumoto, and T. Kaneko 2861
Convenient Synthesis of Chloroiodomethane from Dichloromethane and Sodium Iodide in DMF ....S. Miyano and H. Hashimoto 2864
Stereochemical Studies in Friedel-Crafts Reactions. IV. The Reactions of *cis*-1,2-Disubstituted 4-Cyclohexenes with Benzene .....K. Sugita and S. Tamura 2866
Direct Iodination of Trimethylbenzoic Acids and Tetramethylbenzoic Acids with Iodine-Periodic Acid .... H. Suzuki 2871
The Oxidation of Phenols by Potassium Disulfonate Nitroxyl.....K. Maruyama and T. Otsuki 2873
Mechanism of the Oxygen Exchange Reaction of Diaryl Sulfoxides in Hydrochloric Acid .... H. Yoshida, T. Numata, and S. Oae 2875
Effect of the Number of Sulfur Atoms on the Chemical Shifts of Mercapto Protons in Aralkyl Hydropolysulfides.....S. Kawamura, T. Horii, and J. Tsurugi 2878

Short Communications

Admittance Behavior of Electrode Reaction of Water at a Dropping Mercury Electrode..... ..... K. Matsuda, K. Takahashi, and R. Tamamushi 2880
Infrared Spectra of Crystalline Chloroform at High Pressure.....M. Koyama and H. Yamada 2881
Synthesis of 4-Substituted Isoxazole-3,5-dicarboxylic Acids from 2-Substituted-1,3-dinitroglutarates and the Reaction Mechanism Therefrom.....S. Zen and M. Koyama 2882
The Crystal and Molecular Structure of *trans*-Bis(dinitrogen)bis[1,2-bis(diphenylphosphino)ethane]molybdenum(0) .....T. Uchida, Y. Uchida, M. Hidai, and T. Kodama 2883
The Photosensitized Decomposition of Methane Adsorbed on Porous Vycor Glasses Coated with Metal Oxides at 77°K .....Y. Fujita, K. Hatano, M. Yanagita, T. Katsu, M. Sato, and T. Kwan 2884
Reaction of Photo-excited Phenanthraquinone with Dibenzyl Ether. Formation of an Adduct and Its Decomposition Studied by CIDNP Method .....K. Maruyama and T. Otsuki 2885
ESR Spectrum of Triplet Species in Würster's Red Perchlorate.....M. Itoh 2886
Glassy Liquid Crystal of the Nematic Phase of *N*-(*o*-Hydroxy-*p*-methoxybenzylidene)-*p*-butylaniline ....M. Sorai and S. Seki 2887
A Mass Spectrometric Study of the Reaction of Hydrogen Atom with Butadiene..S. Koda and T. Hikita 2888

No. 11

General and Physical

Reaction Kinetics of the Redox Decomposition of Hydroxymercurated Propylene in Aqueous Solution Followed by Time-Sequential NMR Spectroscopy ..... M. Matsuo and Y. Saito 2889

Reaction of Methanol with Accelerated Rare Gas Ions ..... T. Kotoyori, M. Takahasi, and A. Ichinose 2893

Near Ultraviolet Absorption Spectrum of Pyridine-d_5 Vapor ..... Y. Hasegawa 2900

Kinetic Studies of the Solvent Extraction of Metal Complexes. I. The Extraction of the Beryllium(II)-TTA Chelate from Aqueous Perchlorate Media into Carbon Tetrachloride and Methyl Isobutyl Ketone ..... T. Sekine, Y. Koike, and Y. Komatsu 2903

Studies on Microcapsules. XI. Electrophoretic Behavior of Polyphthalamide Microcapsules Containing Aqueous Solution of Bovine Serum Albumin ..... M. Shiba, Y. Kawano, S. Tomioka, M. Koishi, and T. Kondo 2911

Photochemical Reactions of Uranyl Ions with Organic Compounds. IV. The Uranyl Fluorescence Quenching by Aliphatic Alcohols ..... S. Sakuraba and R. Matsushima 2915

Desorption of Spread Monolayer of 1-Dodecanol into Aqueous Sodium Dodecyl Sulfate Substrate ..... T. Seimiya, K. Ohbu, A. Nakamura, and T. Sasaki 2918

Evidence of a Preresonance Raman Effect of the Base Residue in a Nucleic Acid ..... M. Tsuboi, S. Takahashi, S. Muraishi, and T. Kajiura 2921

Structure and Rotational Isomerism of Ethylenediamine as Studied by Gas Electron Diffraction ..... A. Yokozeki and K. Kuchitsu 2926

Solvent Effects on the Spin -Lattice Relaxation Times and Chemical Shifts of *N*-Methylacetamide and *N,N*-Dimethylacetamide in Hydrogen Bonding Solvents ..... K. Sato and A. Nishioka 2931

An MO-theoretical Interpretation of the Nature of Chemical Reactions. III. Bond Interchange ..... H. Fujimoto, S. Yamabe, and K. Fukui 2936

Studies of the Liquid-Liquid Partition Systems. VIII. Stabilities and Extractabilities of Copper(II) and Zinc(II) Complexes with Acetylacetone, Trifluoroacetylacetone, and Hexafluoroacetylacetone in Aqueous Sodium Perchlorate Solution-Carbon Tetrachloride Systems ..... T. Sekine and N. Ihara 2942

Electron Spin Resonance Study of Short-Lived Free Radicals in Photoreduction of Benzophenone ..... H. Yoshida and T. Warashina 2950

The Crystal Structure of 1,4-Bis(*p*-bromophenoxy)butane ..... T. Ishikawa, S. Karino, S. Nagai, N. Yasuoka, N. Kasai, and M. Kakudo 2954

Anodic Oxidation of Aniline in Aqueous Alkaline Solution ..... Y. Matsuda, A. Shono, C. Iwakura, Y. Oishiro, T. Agawa, and H. Tamura 2960

Thermoelectric Powers of Molten I_2+Te Solutions ..... K. Ichikawa and M. Shimoji 2964

Properties of Water in Macromolecular Gels. III. Dilatometric Studies of the Properties of Water in Macromolecular Gels ..... M. Aizawa and S. Suzuki 2967

Reactions of Aliphatic Amines with *p*-Benzoquinone and Its Chloro Derivatives ..... T. Yamaoka and S. Nagakura 2971

Semiclassical Calculation of the Vibrational Transition Probabilities of Diatomic Molecules in Collision. The Effect of Vibrational Anharmonicity ..... Y. Yonezawa and T. Fueno 2976

The Crystal and Molecular Structure of Bis(*o*-ethoxyphenyl)butadiyne ..... T. Taga, N. Masaki, K. Osaki, and T. Watanabé 2981

Effects of External Pressure on the Light Absorption and Fluorescence of *s*-Tetracyanobenzene Complexes ..... Y. Torihashi, Y. Furutani, K. Yagii, N. Mataga, and A. Sawaoka 2985

Mercury Photosensitized Reaction of Deuterio-Propylene Studied by Microwave Spectroscopy ..... Y. Sakurai, T. Onishi, and K. Tamaru 2990

Re-examination of the Cycloaddition of Cycloheptatriene with Maleic Anhydride ..... H. Ishitobi, H. Tanida, K. Tori, and T. Tsuji 2993

Kinetics of Silver(I) Ion Catalysed Oxidation of Glycine by Peroxodisulphate Ion ..... G. Chandra and S. N. Srivastava 3000

The Dehydrogenation of Butyl Alcohols by the Molten-metal Catalysts ..... K. Kashiwadate, Y. Saito, A. Miyamoto, and Y, Ogino 3004

Vibrational Spectra and Normal Coordinate Calculations of $HgNH_2Cl$ and $HgNH_2Br$ ..... K. Niwa, H. Takahashi, K. Higasi, and T. Kajiura 3010

Far-infrared Reflection Spectra, Optical and Dielectric Constants, and Lattice Vibrations of Some Fluoride Crystals ..... I. Nakagawa 3014

The Crystal and Molecular Structure of Miyaconitine Hydrobromide Dihydrate ..... H. Shimanouchi, Y. Sasada, and T. Takeda 3020

Notes:

The Observation of Surface Hydroxyl Groups on Metal Oxides by Means of Infrared Reflectance Spectroscopy ..... N. Takezawa 3177

Syntheses of Aromatic Dicarbamates and Their *N,N'*-Dihydroxymethyl Derivatives ..... S. Takeuchi and E. Ninagawa 3184

Single-Photon Ionization in the Flash Photolysis of *N,N,N',N'*-Tetramethyl-*p*-phenylenediamine in Solution ..... T. Imura, N. Yamamoto, H. Tsubomura, and K. Kawabe 3185

Vinyl Polymerization. 272. Synthesis and Polymerization of 9-*O*-Methacryloylquinine ..... K. Yamauchi, M. Kinoshita, and M. Imoto 3186

Magnetic Properties of Organic Stable Radicals. III. Diphenyl Nitric Oxide ..... O. Takizawa, J. Yamauchi, H. Ohya-nishiguchi, and Y. Deguchi 3188

The Characteristics of Defect Lead Titanate ..... S. Shirasaki, K. Takahashi, and K. Manabe 3189

The Effects of the Exciting Energy on the Atomic and Molecular Detachments of Hydrogen in the Photolysis of Simple Molecules ..... K. Obi, Y. Ogata, and I. Tanaka 3190

The Proton Magnetic Resonance Spectrum of 1,2,3,4-Tetrahydronaphthalene Polymer ..... T. Yonemitsu, Y. Matsukuma, K. Furukawa, and G. Hazato 3192

Effects of AC Pretreatment on the Formation of Anodic Titanium Oxide Films ..... M. Yamazaki, M. Nakagawa, and H. Nozaki 3200

Photosensitive Systems Involving Photoconduction and Photochromism ..... T. Nakayama, I. Shimizu, H. Kokado, and E. Inoue 3203

An Empirical Formula for the Optimum Concentration for Hydrothermal Precipitation ..... T. Katsurai 3207

Analytical and Inorganic

The Extraction of the Cesium Ion with Some Nitrophenols into Nitrobenzene. II. Homoconjugation Studies by Means of Conductivity Measurements ..... O. Tochiyama, M. Koyama, and T. Fujinaga 3028

Anomalous Gas Chromatogram Due to the Oxidation of Porous Polymer Beads by a Sample Containing Oxygen Gas ..... R. Soda 3032

Hot-atom Chemistry of Cobalt-60 Atoms in Neutron Irradiated Organic Solutions of Tris(acetylacetonato)-cobalt(III) ..... T. Tominaga, T. Sakai, and K. Fujiwara 3036

A Comparison of 4-Hydroxynaphthalene-2,7-disulfonic Acid with Chromotropic Acid as a Coupling Component of Azo-type Metallochromic Indicators ..... T. Katayama, H. Miyata, and K. Tôei 3040

The Phase Equilibria in the FeO–Fe_2O_3–V_2O_3 System at 1500°K ..... M. Wakihara and T. Katsura 3043

Kinetics of the Reaction of Americium(III) with Peroxydisulfate ..... A. Ohyoshi, A. Jyo, and T. Shinohara 3047

Metal Complexes Containing Six-Membered Chelate Rings. I. Preparation and Structure of 2,4-Pentanediaminetetraacetato Complexes of Cobalt(III) ..... F. Mizukami, H. Ito, J. Fujita, and K. Saito 3051

Kinetic Studies of the Electron Transfer Reaction in Iron(II) and Iron(III) Systems. IV. The Reaction in Mixed Solvents of Dimethyl Sulfoxide and Water ..... G. Wada and M. Aoki 3056

NOTES:

Nuclear Magnetic Resonance Studies of Nitrosonaphthols.....T. SHONO, Y. HAYASHI, and K. SHINRA 3179

Carbon Products Prepared from Variant Pitch Materials. VI. Pitch Carbon Prepared from Naphtha Cracking Pitch.....S. ŌTANI and A. ŌYA 3181

Organic and Biological

Mass Spectrometry of Dyes. IV. Electron Impact Reaction of Nitrophenyl Phenyl Ethers and Their Charge Migration.....K. YAMADA, T. KONAKAHARA, and H. IIDA 3060

The Reactions of Grignard Reagents with Transition Metal Halides: Coupling, Disproportionation,and Exchange with Olefins.....M. TAMURA and J. K. KOCHI 3063

The Stereochemistry of 5-Substituted 2-Oxo-3-aryl-1,2,3-oxathiazolidines.....T. NISHIYAMA and F. YAMADA 3073

The Reactions of Pyridinium Bromides with Sulfenamides.....T. MUKAIYAMA and K. SAIGO 3077

A Study of the Catalytic Partial Oxidation of Hydrocarbons. XI. The Catalytic Activity of the MoO_3–P_2O_5 and the MoO_3–Bi_2O_3–P_2O_5 in the Selective Oxidation of Butene, Butadiene, and Furan..... M. AI and S. SUZUKI 3081

Imidazole Catalyses in Aqueous Systems. VIII. Spontaneous Hydrolysis and Michaelis-Menten-type Catalytic Hydrolysis of Phenyl Esters in the Presence Cholic Acid and Its Histamine Derivative..... S. SHINKAI and T. KUNITAKE 3086

S_N2 Reactions in Dipolar Aprotic Solvents. Chlorine Isotopic Exchange Reactions of 2-Arylethyl Chlorides, Chloromethyl Aryl Ethers, and Chloromethyl Aryl Sulfides in Acetonitrile..... J. HAYAMI, N. TANAKA, S. KURABAYASHI, Y. KOTANI, and A. KAJI 3091

The Effects of Solvents and Acid Catalysts on the Rearrangement of 2-Benzylidenecyclohexanone Oxide..... K. HINOUE, M. NOJIMA, and N. TOKURA 3096

Polymerization of Methyl Methacrylate by the Bis(benzoylacetonato)Copper(II)-1,10-Phenanthroline System..... K. KAERIYAMA and Y. YAMAZAKI 3099

The Photoreactions of Phenazines *via* a Semiquinone Radical. The Photoreductive Deacylation of 1- or 2-Acyloxyphenazine..... H. INOUE, T. OCHIAI, A. SUGIMOTO, and E. IMOTO 3101

The Conversion of Some Alkylxanthates to the Corresponding Trithiocarbonates. The Nucleophilic Reaction of ^-SCSSR.....H.-YOSHIDA, T. OGATA, and S. INOKAWA 3106

The Properties and Assignment of Isomers of 2,4-Dinitrophenylhydrazones of Some Aliphatic α-Keto Acids..... H. KATSUKI, T. YOSHIDA, J. NAGAI, and S. TANAKA 3108

Free-Radical Chlorination of Alkylsilanes. VI. The Hydrogen Abstraction from α-Substituted Hydrosilanes by Chlorinated Methyl Radicals....Y. NAGAI, H. MATSUMOTO, M. HAYASHI, E. TAJIMA, and H. WATANABE 3113

The Constituents of Hops. VI. Studies of the Volatile Composition of *Humulus lupulus* L. during Ripening..... Y. NAYA and M. KOTAKE 3116

Studies on the Baudisch Reaction. IV. The Reaction Mechanism.....K. MARUYAMA and I. TANIMOTO 3120

Carboxylation of Phenol Derivatives. XX. Syntheses of Phenolpolycarboxylic Acids by the Carboxylation of Alkali Phenoxide in the Presence of Alkali Alkyl Carbonate.....T. KITO and I. HIRAO 3123

The Copolymerization of 2-Chloroacrylaldehyde with Styrene..... Y. MATSUBARA, P. R. KAVI, M. YOSHIHARA, and T. MAESHIMA 3127

Syntheses of *N*-Substituted Carbamimidoylformic Acids..J. YOSHIMURA, K. FUJIMORI, Y. SUGIYAMA, H. ANDO 3131

Studies of the Synthesis of Furan Compounds. XXV. 2-[2-(5-Nitro-2-furyl)-1-(4-cyanophenyl)vinyl]-1,3,4-oxadiazoles and -1,3,4-thiadiazoles..... I. HIRAO and Y. KATO 3136

Retardation Effect Induced by Pyridine in the Radical Copolymerization of Styrene and Liquid Sulfur Dioxide .....T. ENOMOTO, M. IINO, M. MATSUDA, and N. TOKURA 3140

Conformations of the Esters. II. The Conformation of Alkyl Acetates.....M. ŌKI and H. NAKANISHI 3144

Conformations of the Esters. IV. The Conformations of Carbamates.....M. ŌKI and H. NAKANISHI 3148

Aromatic Arylation with Aryl Radicals. III. Gomberg Reaction in Dimethyl Sulfoxide..... N. KAMIGATA, T. KURIHARA, H. MINATO, and M. KOBAYASHI 3152

Syntheses and Reactions of 2-Ethylthio- or 2-Phenylthio-2-cycloalkenones..... T. MUKAIYAMA, T. ADACHI, and T. KUMAMOTO 3155

A Dianthr[14]annulene..... S. AKIYAMA and M. NAKAGAWA 3158

The Reduction of *gem*-Dibromocyclopropanes by Means of Chromium(II) Acetate or Potassium Pentacyanocobaltate..... T. SHIRAFUJI, K. OSHIMA, Y. YAMAMOTO, and H. NOZAKI 3161

The Structure of Petasitolone, a New Constituent of *Petasites japonicus* Maxim..... K. NAYA, F. YOSHIMURA, and I. TAKAGI 3165

Photolytic and Thermal Decompositions of 5-Substituted 1,2,3,4-Thiatriazoles in the Presence of Olefins. Reactions of Sulfur Atoms..... R. OKAZAKI, K. OKAWA, S. WAJIKI, and N. INAMOTO 3167

NOTES:

The NMR Chemical Shifts of Aromatic Ring Protons. II. The Substituent Chemical Shift of the Ring Protons of 1-Substituted Naphthalenes..... Y. YUKAWA, Y. TSUNO, and N. SHIMIZU 3175

The Cyclization of Polyenes. VII. The Cyclization of Labda-13-ene-8,12,15-triol..... T. KATO, S. KANNO M. TANEMURA, A. KUROZUMI, and Y. KITAHARA 3182

Alkoxysilanes. VIII. The Preparation of Alkoxysiloxy Derivatives of Aluminum and Boron..... I. KIJIMA, T. YAMAMOTO, and Y. ABE 3193

Nicotinonitrile Derivative from 2-Cyano-3-mercapto-3-methylthioacrylamide..... M. YOKOYAMA 3195

Conformations of the Esters. III. The Infrared Carbonyl Absorptions and Conformations of Propionates, Isobutyrates, and Pivalates..... M. ŌKI and H. NAKANISHI 3197

Synthetic Studies of the Flavone Derivatives. XXIII. The Synthesis of Eupatilin..... T. HORIE, M. TSUKAYAMA, M. MASUMURA, K. FUKUI, and M. NAKAYAMA 3198

Fermentation without Multiplication of Cells Using Microcapsules That Contain Zymase Complex and Muscle Enzyme Extract..... M. KITAJIMA and A. KONDO 3201

The Isomeric Sulfites of Dihydrofukinolidol..... K. NAYA, I. TAKAGI, and T. KASAI 3204

1,8-Dimethylanthracene..... S. AKIYAMA and M. NAKAGAWA 3206

An SCF MO Treatment of Tropone Radical Anion..... N. TRINAJSTIĆ 3208

Applied

Adsorptive Properties of Decationated Zeolite for Some Aromatic Hydrocarbons as Observed by Gas Chromatography..... H. MATSUMOTO, H. FUTAMI, F. KATO, and Y. MORITA 3170

Short Communications

The Oxyphenylation of Olefins..... H. HORINO and N. INOUE 3210

The Light Resistance of the Flavones and the Flavonols..... M. KANETA and N. SUGIYAMA 3211

Proton Knight Shift in Lithium-Methylamine Solutions..... Y. NAKAMURA, M. YAMAMOTO, S. SHIMOKAWA, and M. SHIMOJI 3212

The Reactions of Hot Deuterium Atoms with Etyhlene..... Y. SANO and S. SATO 3213

A Ternary Rare Earth Boride with a $ThCr_2Si_2$-type Structure..... K. NIIHARA, T. SHISHIDO, and S. YAJIMA 3214

Reaction of Thioboronite. A Convenient Method for the Preparation of β-Hydroxyalkanethioates..... T. MUKAIYAMA and K. INOMATA 3215

A New Catalyst System for Ammonia Synthesis..... A. OZAKI, K. AIKA, and H. HORI 3216

Codimerization of Ethylene and Styrene Catalyzed by Bis(triphenylphosphine)σ-aryl Nickel(II) Halide - Trifluoroboron Etherate..... N. KAWATA, K. MARUYA, T. MIZOROKI, and A. OZAKI 3217

A Remark on the Unsuitable Use of Nitrobenzene as a Standard Substrate for Homolytic Aromatic Substitution ..... H. Ohta and K. Tokumaru 3218

Lewis Acid Complexes of Diphenylcyclopropenone ..... Z. Yoshida and H. Miyahara 3219

The Retentive Solvolysis of 1-Phenylethyl Chloride in Binary Mixtures of the Carboxylic Acid with Nitromethane or the Nitrile ..... K. Okamoto, I. Nitta, M. Dohi, and H. Shingu 3220

Quenching Cross-Sections of the Metastable Mercury Atom (6^3P_0) ..... H. Horiguchi and S. Tsuchiya 3221

Photoinduced Transannular Reaction of 4,5-Octamethylene-1,3-dioxolen-2-one ..... T. Hiyama, S. Fujita, and H. Nozaki 3222

No. 12

General and Physical

Ultrasonic Study on Aqueous Solutions of Amino Acids ..... K. Sasaki and K. Arakawa 3223

An ESR Study of NO_2 Adsorbed on Silica Gel Surfaces ..... M. Iwaizumi, S. Kubota, and T. Isobe 3227

On the Factors Determining the Molecular Arrangement in Crystalline Ethylene ..... M. Hashimoto, M. Hashimoto, and T. Isobe 3230

The Ultraviolet Absorption Spectra of Olefins Adsorbed on the Platinum Catalyst ..... Y. Soma 3233

The Catalytic Activity and Selectivity of Acidic Metal Salt Catalysts for *n*-Butene Isomerization ..... M. Misono and Y. Yoneda 3236

Dependence of ζ-Potential upon Particle Size and Capillary Radius at Streaming Potential Study in Non-aqueous Media ..... A. Kitahara, T. Fujii, and S. Katano 3242

Acidity Constants of Phenanthrylamines in the Ground, Excited Singlet, and Triplet States ..... K. Tsutsumi, K. Aoki, H. Shizuka, and T. Morita 3245

Radiotracer Studies on Adsorption of Surface Active Substance at Aqueous Surface. IV. Direct Measurement of Adsorption of Tritiated Nonionic Surfactant ..... K. Tajima, M. Iwahashi, and T. Sasaki 3251

Infrared Spectra and Lattice Vibrations of $Li_2SO_4 \cdot H_2O$ ..... S. Meshitsuka, H. Takahashi, and K. Higasi 3255

Adsorption and Decomposition of Formic Acid Adsorbed on Pyrolyzed Polyacrylonitrile ..... Y. Kubokawa, H. Miyata, and Y. Uegaki 3259

Measurements of Optical Absorption Spectra under ^{60}Co-γ Irradiation. Aqueous Methylene Blue Solutions Containing Oxygen ..... S. Ohno, A. Sakumoto, T. Sasaki, K. Kawatsura, and K. Furukawa 3265

Thermoelectric Power of the Iodine Complexes of Aromatic Diamines and Thiazines ..... M. Sano, K. Ohno, and H. Akamatu 3269

Solvent Effect on the Vibrational Structures of the Fluorescence and Absorption Spectra of Pyrene ..... A. Nakajima 3272

Anharmonic Potential Functions of Simple Molecules. I. Direct Numerical Diagonalization of Vibrational Hamiltonian Matrix and Its Application to CO and HCl ..... I. Suzuki 3277

Time-Resolved Fluorescence Studies on Charge Transfer Interactions in 1,2,4,5-Tetracyanobenzene-Toluene Complex ..... K. Egawa, N. Nakashima, N. Mataga, and C. Yamanaka 3287

The Electrolytic Conductances of Bis(halogenoacetato)bis(ethylenediamine)cobalt(III) Ions in Water ..... M. Yokoi and K. Kuroda 3293

Two Types of Complexes of *o*-Phenylenediamine with Tetracyanoquinodimethane ..... M. Ohmasa, M. Kinoshita, and H. Akamatu 3296

Magnetic Properties of Diisothiocyanatobis(thiourea)nickel(II) and Related Complexes ..... S. Emori, M. Inoue, and M. Kubo 3299

The Catalytic Dehydrohalogenation of Haloethanes on Solid Acids and Bases ..... I. Mochida, Y. Anju, H. Yamamoto, A. Kato, and T. Seiyama 3305

Dynamic Behaviors of the Electron Donor-Acceptor Complex in Its Lowest Excited Singlet State ..... H. Masuhara, M. Shimada, N. Tsujino, and N. Mataga 3310

Vibration Spectra and Molecular Structures of *n*-Butyronitrile, β-Chloropropiononitrile, and β-Bromopropiononitrile ..... T. Fujiyama 3317

Theoretical and Experimental Considerations of the Direct Photo-Isomerization and Chemistry of 1,3-Pentadiene ..... K. Inuzuka and R. S. Becker 3323

Charge-Transfer and Proton-Transfer in the Formation of Molecular Complexes. I. The Complex Isomerization of Some Anilinium Picrates by Melting ..... G. Saito and Y. Matsunaga 3328

The Electron Spin Resonance of Binuclear Vanadyl Tartrates ..... A. Hasegawa, Y. Yamada, and M. Miura 3335
The Flow Properties of Hydrophilic Latexes Thickened with Alkali ..... Y. Ito and S. Shishido 3341
The Semiconductive Property and the Phase Transition of the $[(C_6H_5)_3PCH_3]^+(TCNQ)_2^-$ Anion Radical Salt. The Entropy Change Due to Electrons and Holes ..... Y. Iida 3344

Notes:

Anodic Oxidation of Anthracene in Acetonitrile at a Rotating Ring-disk Electrode ..... T. Kihara, K. Sasaki, and H. Shiba 3457
Studies on Rydberg Orbitals. III. Calculation of the 4*s*, 4*p*, and 4*d* Orbitals of Carbon Atom ..... H. Hosoya 3464
Solvent Effect on the Photochemical Oxidation of Phenothiazine with Oxygen ..... T. Iwaoka, H. Kokubun, and M. Koizumi 3466
ESR Studies of the Sulfite Radical Anion ..... T. Ozawa, M. Setaka, and T. Kwan 3473

Analytical and Inorganic

Stability and Extractability of Zinc(II) Thiocyanate Complexes in Several Solvent Extraction Systems ..... H. Moriya and T. Sekine 3347
Metal Complexes with Amino Acid Amides. III. Geometrical Structures and Electronic Spectra of Bis(α-amino-acid-amidato)palladium(II), -nickel(II) and-copper(II) ..... T. Komorita, J. Hidaka, and Y. Shimura 3353
The Solvent Effect on the Electron-Transfer Reactions of Cobalt(III) Complexes. The Reduction of the *cis*-Chloro-2-aminoethanolbis(ethylenediamine)cobalt(III) Ion by Iron(II) in Aqueous Solutions of Organic Solvents ..... K. Ohashi, K. Yamamoto, T. Suzuki, and Y. Kurimura 3363
Electron-Transfer Reactions of Multidentate-ligand Cobalt(III) Complexes. III. The Reductions of Several Chloro-and Bromo(nitrilopolycarboxylato)cobaltate(III) Ions by Iron(II) ..... Y. Kurimura, I. Meguro, and K. Ohashi 3367
Gas Chromatographic Determination of Ultramicro Amounts of Selenium in Pure Tellurium Metal ..... Y. Shimoichi 3370
Spectroscopic Studies of Polynuclear Complexes. III. Characteristics of Some μ-Peroxoammine Cobalt(III) Complexes ..... Y. Sasaki, J. Fujita, and K. Saito 3373

Notes:

An Investigation of the Stability Constant of the 2,3-Dihydroxybenzoic Acid Complex with Copper(II) ..... H. Harada 3459
Formation Constants of Several Copper(II) Alkylthioacetates in a Dioxane-Water Solvent ..... A. Ouchi, T. Takeuchi, and Y. Ohashi 3461
The Determination of the Stability Constant of the Copper(II) Chelate of 2-(*o*-Acetylphenylazo)-1,8-dihydroxynaphthalene-3,6-disulfonic Acid ..... S. Nagamori and H. Miyata 3476

Organic and Biological

The Stereochemistry of Nucleophilic Addition. II. The Reformatsky Reaction of Methyl (+)-α-Bromopropionate, 2-Phenylpropanal, and 3-Phenyl-2-butanone ..... T. Matsumoto, I. Tanaka, and K. Fukui 3378
Stereochemical Studies in Friedel-Crafts Reactions. I. The Reactions of *cis*-and *trans*-4-Tetrahydrophthalic Acid and Its Dimethyl Ester with Benzene ..... K. Sugita and S. Tamura 3383
Stereochemical Studies in Friedel-Crafts Reactions. II. The Reactions of 4-Substituted Cyclohexenes with Benzene ..... K. Sugita and S. Tamura 3388
Studies on Separation of Amino Acids and Related Compounds. V. A Racemization Test in Peptide Synthesis by the Use of an Amino Acid Analyzer ..... N. Izumiya, M. Muraoka, and H. Aoyagi 3391
Syntheses of (3S, 4R, 15S)-4,15-Dimethyl-1,5-dioxa-3(3′-formamidosalicylamido)cyclopentadecane-2,6-dione and Its (15R)-Epimer, New Antimycin Analogs ..... M. Kinoshita, K. Ishii, and S. Umezawa 3395
Studies on Aminosugars. XXIX. Syntheses of Nucleosides of 3-Amino-3-deoxy-3-*C*-hydroxymethyl-β-D-ribofuranose ..... H. Yanagisawa, M. Kinoshita, and S. Umezawa 3399
The Carboxylation Reaction Using Nickel Catalysts. V. The Catalytic Reaction of Propene with Nickel Carbonyl and Nickel Carbonyl-Triphenylphosphine ..... S. Kunichika, Y. Sakakibara, T. Okamoto, and K. Takagi 3405
Studies on Hetero-Cage Compounds. II. pK_a Studies on the 3,10-Diazabicyclo[4.3.1]decane System ..... T. Sasaki, S. Eguchi, and T. Kiriyama 3410
The Reaction of Nitriles under High Pressure. I. The Formation of Triphenyl-1,3,5-triazine *via* the Equilibrium among Benzonitrile, Alcohols, and Benziminoethers ..... M. Kurabayashi, K. Yanagiya, and M. Yasumoto 3413

Conformations of the Esters. V. The Conformations of Carbonates.....M. Ōki and H. Nakanishi 3419
Syntheses of Acylurea Derivatives as Model Compounds for a Highly Specific Organic Reaction.....
..... T. Endo, S. Noguchi, and T. Mukaiyama 3424
Preparation of Carboxylic Esters and Phosphoric Esters by the Activation of Alcohols .....
..... O. Mitsunobu and M. Eguchi 3427
Synthesis and the Iodine-Catalyzed Rearrangement of Isohibaene.....
.....M. Kitadani, K. Ito, and A. Yoshikoshi 3431
Studies of Hydroxy Amino Acids. II. The Separation of Diastereoisomers of Hydroxy Amino Acids .....
..... Y. Ariyoshi and N. Sato 3435
The Synthesis and Photo Reaction of 7,11-Dimethyl-1,6,10-dodecatrien-3-one .....
..... T. Kato, H. Maeda, M. Tsunakawa, and Y. Kitahara 3437
The Photochemistry of Large-ring Cycloalkanones .....K. Matsui, T. Mori, and H. Nozaki 3440
The Preparation of 9-Ethynylanthracene and 9-Ethynyltriptycene and Their Oxidative Coupling .....
..... S. Akiyama, F. Ogura, and M. Nakagawa 3443
Studies on Stable Free Radicals. VI. Synthesis of Substituted 4-Imidazolidinone-1-oxyls .....
..... T. Toda, S. Morimura, E. Mori, H. Horiuchi, and K. Murayama 3445
Charge Migration through Sigma Bonds in a Fragment Ion from 5,5′-Divaleryl-2,2′-spirobiindan under Electron Impact.....A. Tatematsu, S. Naga, H. Sakurai, T. Goto, and H. Nakata 3450

Notes:

The Reduction of Some Quinones and Enones by Ferrocene in the Presence of Aluminum Chloride .....
..... Y. Omote, R. Kobayashi, C. Kashima, and N. Sugiyama 3463
β-Substituted α-Cyanoglycidic Esters and Their Reactions.....M. Igarashi, M. Tamura, and M. Yanagi 3468
Copolymerization of Styrene and Liquid Sulfur Dioxide in the Presence of α-Toluenethiol, 1-Butanethiol, or Bromotrichloromethane .....M. Iino, T. Iguchi, and N. Tokura 3469
The Reaction of Iodine Azide with Diphenylfulvene .....T. Sasaki, K. Minamoto, and K. Usami 3471
Aroyl Arenesulfonyl Peroxides. II. Phenylation with Phenyl Radical Generated from Benzoyl p-Toluenesulfonyl Peroxide..... R. Hisada, N. Kamigata, H. Minato, and M. Kobayashi 3475
The Use of Nickel Peroxide as Oxidizing Agent of Phenylhydrazine for the Generation of Phenyl Radicals ....
..... H. Ohta and K. Tokumaru 3478
5-Bromo-2,3-benzotropone and Its Maleic Anhydride Adduct .....
..... S. Ebine, M. Hoshino, and T. Machiguchi 3480
Substituent Effects on the NH Proton Chemical Shifts of p-Substituted Phenylureas .....
..... Y. Asabe and Y. Tsuzuki 3482
Dimerization of Malononitrile by Palladium and Platinum Complex Catalysts .....
..... K. Takahashi, A. Miyake, and G. Hata 3484

Applied

Decomposition of Saturated Gaseous Hydrocarbons in Induction-Coupled Argon Plasma Jet .....
..... Y. Nishimura, A. Satoh, K. Takeshita, and W. Sakai 3453

Short Communications

Stereochemical Study of *N,N′*-Dimethylethylenediamine Cobalt(III) Complex *trans*-Dinitrobis(*N,N′*-dimethylethylenediamine)cobalt(III) Ion .....S. Yano, M. Saburi, and S. Yoshikawa 3486
The Oxidation of Chroman-4-ols with Chromic Acid .....
.....S. Yamaguchi, K. Kabuto, Y. Kikuchi, and N. Inoue 3487
A Novel Synthesis of Ethyl β-Diethoxyphosphinyl-α,β-unsaturated-carboxylates .....
..... C. Shin, Y. Yonezawa, and J. Yoshimura 3488
Some Short-lived Isotopes of Lanthanum .....A. Ohyoshi, E. Ohyoshi, T. Tamai, and M. Shinagawa 3489
The Oxidative Coupling of Butyrophenone by Ferric Chloride .....H. Inoue, M. Sakata, and E. Imoto 3490
The Crystal Structure of $(-)_{589}$-Dinitrobis(ethylenediamine)cobalt(III) $(+)_{589}$-Bis(malonato)ethylenediaminecobaltate(III) .....K. Matsumoto and H. Kuroya 3491
Note on the Formation Constant of the Mono(ethylenediamine)chromium(III) Complex .....
..... J. Bjerrum and O. Mønsted 3492
Hydrogen-Deuterium Exchange in the Methyl Group of Four Bisdimethylglyoximatocobalt(III) Complexes
..... H. Yoneda, I. Takagi, and Y. Morimoto 3493
Syntheses of 3,4-Dideoxy-3-enosides and the Corresponding 3,4-Dideoxy Sugars .....
..... S. Umezawa, T. Tsuchiya, and Y. Okazaki 3494
The Photoreduction of Polyacenes by Tri-*n*-butyl Stannane .....
.....I. Fujihara, M. Okushima, S. Hirayama, S. Kusuhara, and J. Osugi 3495
Effects of Fluoroborates on the Visible Absorption Spectra of Lanthanum(III)-Alizarin Complexon Chelate..
..... Y. Moriguchi, T. Kuwabara, and I. Hosokawa 3496

BULLETIN
OF THE
CHEMICAL SOCIETY OF JAPAN

Volume 45

1972

Sumio Umezawa, Editor

Kozo Nagashima, Assistant Editor

Editorial Board

Hideo Akaiwa	Mitsuhiro Kinoshita	Yasukazu Saito	Isao Tomita
Mitsuomi Itoh	Toshihiko Migita	Hideki Sakurai	Ryokichi Tsuchiya
Hiroshi Inagaki	Kenichi Morinaga	Mizuka Sano	Ichiro Yamaguchi
Toschitake Iwamoto	Mitsuo Muramatsu	Tadashi Sasaki	Hiroshi Yamazaki
Hiroshi Kakisawa	Yutaka Nagai	Tadamasa Shida	Tatsuya Yasunaga
Yoshiya Kanda	Kazuyoshi Ogino	Isao Suzuki	Masayuki Yoshida
Masayoshi Kinoshita	Atsuyoshi Ohno	Yasuo Suzuki	

Published by

The Chemical Society of Japan

5, 1-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

© 1972 by The Chemical Society of Japan

BULLETIN
OF THE
CHEMICAL SOCIETY
OF JAPAN

Volume 45

1972

Published by
The Chemical Society of Japan
5, 1-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

CONTENTS OF VOLUME 45, 1972

No. 1

General and Physical

The Mössbauer Effect in Ethyltin Halides and Related Compounds.....N. Watanabe and E. Niki 1

The X-Ray Emission Spectra of the Compounds of Third-period Elements. II. The *K* Spectra of Phosphorus in Compounds ..... Y. Takahashi 4

Spectra of Anions in Pure Iodine Melt and Iodine Solution Containing Tellurium..... .....K. Ichikawa and M. Shimoji 8

A MO-theoretical Sutdy of the Catalytic Activity of Onium Compounds in the Liquid-phase Oxidation..... .....K. Ohkubo and H. Kanaeda 11

Measurements of the Vapor and Dissociation Pressures of Potassium Sulfate and Carbonate at High Temperatures ..... T. Kosugi 15

Studies of Rare Earth Oxyfluorides in the High-temperature Region.....K. Niihara and S. Yajima 20

The Kinetics and Mechanism of the Photo-oxidation of *N,N'*-Diphenyl-*p*-phenylenediamine. Electron-transfer from the Upper Excited Singlet State to Oxygen.....H. Shizuka, Y. Sawaguri, and T. Morita 24

Calculation of Infrared Band Intensities of Various Chlorinated Ethanes.....K. Tanabe and S. Saëki 32

Study of Grinding Reaction of the System of Fine Particle Silica and Basic Zinc Carbonate by X-Ray Silicon K-Emission Band Spectra.....M. Motoyama and G. Hashizume 38

Re-absorption Effect of Charge-Transfer Fluorescence by the Excited Electron Donor-Acceptor Complex..... .....H. Masuhara and N. Mataga 43

Acidic Property and Catalytic Activity of $TiO_2 \cdot ZnO$ ....K. Tanabe, C. Ishiya, I. Matsuzaki, I. Ichikawa, and H. Hattori 47

Gas-Phase Charge-Transfer Complexation of Carbonyl Cyanide as Acceptor.....T. Fueno and Y. Yonezawa 52

ESR Investigation of Copper Ions on Several Kinds of Cation Exchange Resins..K. Umezawa and T. Yamabe 56

Electron Spin Resonance Studies of Bis(acetylacetonato)copper(II) Adsorbed on X-Type Zeolite. I. Interaction with Ammonia and Aniline ..... Y. Yamada 60

Electron Spin Resonance Studies of Bis(acetylacetonato)copper(II) Adsorbed on X-Type Zeolite. II. The Substitution Reaction of Ligands with Pyridine.....Y. Yamada 64

The Dehydrogenation of Amines by Molten Metal Catalysts.....K. Okano, Y. Saito, and Y. Ogino 69

Interaction between Phenothiazine Triplet State with Several Electron Acceptors..... .....T. Iwaoka, H. Kokubun, and M. Koizumi 73

Transient Species Obtained by the Flash Photolysis of Chloranil in Various Solutions..... .....K. Kawai, Y. Shirota, H. Tsubomura, and H. Mikawa 77

Partial Pressures of Strontium and Strontium Oxide over Strontium Oxide Heated on Platinum..... .....M. Asano, Y. Yamamoto, N. Sasaki, and K. Kubo 82

Viscous Properties of Liquid Oligotrifluorochloroethylene.....N. Yoshida and S. Hamada 88

The Microwave Spectrum of Dimethyl Sulfone.....S. Saito and F. Makino 92

Low Frequency Raman Spectra and Phase Transition of the 1,2-Dichloroethane Crystal..... .....A. Ozora, T. Nakagawa, and M. Ito 95

Exact Classical-Mechanical Calculation of the Translational-Vibrational Energy Transfer of Energized Anharmonic Diatomic Molecules ..... O. Kajimoto and T. Fueno 99

The Physical Properties of the Anion Radical Salts Derived from 3,5,3′,5′-Tetrachloro-4,4′-diphenoquinone and 3,5,3′,5′-Tetrabromo-4,4′-diphenoquinone.....Y. Iida 105

The Photochemical Decomposition of Ethylamine as Studied by Means of the Electron Spin Resonance..... .....Y. Kotake, M. Ono, and K. Kuwata 110

Molecular Vibrations and Force Fields of Alkyl Sulfides. II. Infrared Spectra of $CH_3S(CH_2S)_nCH_3$ (n=0—3) .....M. Ohsaku, Y. Shiro, and H. Murata 113

Charge-transfer Interaction and Chemical Reaction. IV. Reactions of *para*-Substituted Derivatives of Aniline with Chloranil.....T. Nogami, K. Yoshihara, and S. Nagakura 122

The Infrared Spectra and the Antiferroelectric Phase Transition of Copper Formate Tetrahydrate..J. Hiraishi 128

Heat Capacity of Ammonium Chloride between 8 and 300 K.....H. Chihara and M. Nakamura 133

NOTES:

Tautomerism in 1-Arylazo-2-naphthols as Studied by Fluorescence ..... Y. MATSUNAGA and M. SHIMANE 295

Rotational Isomerism in Ethylmethylsilane ..... M. HAYASHI, K. OHNO, and H. MURATA 298

On the Role of the Quadrupole-quadrupole Interaction in the Molecular Arrangements in Crystalline Benzene ..... M. HASHIMOTO and T. ISOBE 299

Analytical and Inorganic

Polarographic Catalytic Waves of Titanium(IV) Chelates of EDTA and Related Compounds ..... H. KANEKO and T. OZAWA 140

Electric Conduction and Density of Condensed Phosphoric Acids and Their Mixtures with Sulfuric Acid ..... A. AKIYAMA, T. SUZUKI, and T. SAJI 146

Copper(I) Perchlorate Complexes of Allyl, 2-Methylallyl and *cis*- and *trans*-2-Butenyl Alcohols ..... Y. ISHINO, T. OGURA, K. NODA, T. HIRASHIMA, and O. MANABE 150

Reactions of Tris(acetylacetonato)manganese(III) and Bis(acetylacetonato)manganese(II) with Ethylenediamine and Other Primary Amines ..... Y. NISHIKAWA, Y. NAKAMURA, and S. KAWAGUCHI 155

Studies on Mixed Cyano Cobalt(III) Complexes. IV. Preparation and Characterization of *trans*(O,X)-[Co(X)(aminoacidato)(diethylene-triamine)]$^+$ Complexes with X=CN^-, NO_2^-, or Cl^- ..... K. OHKAWA, J. FUJITA, and Y. SHIMURA 161

Rapid Solvent Extraction and Direct Spectrophotometric Determination of Lead(II) with 1,1,1-Trifluoro-4-(2-thienyl)-4-mercaptobut-3-en-2-one ..... S. B. AKKI and S. M. KHOPKAR 167

The Preparation of Bis((dimethylglyoximato)nitrosylcobalt(II) and Its Conversion into the Nitro Complex ..... M. TAMAKI, I. MASUDA, and K. SHINRA 171

Thermal Properties of Copper(II) Chelates of Some 1,5-Alkylpentane-2,4-diones ..... I. YOSHIDA, Y. OONO, H. KOBAYASHI, and K. UENO 174

Isomerism of the Metal Complexes Containing Multidentate Ligands. I. Geometric and Optical Isomers of the Bis(diethylenetriamine)-cobalt(III) Ion ..... Y. YOSHIKAWA and K. YAMASAKI 179

The Analytical Application of Sulfur Analogues of β-Diketones. I. The Extraction Spectrophotometric Determination of Cobalt(II) with 1,1,1-Trifluoro-4-(2-thienyl)-4-mercaptobut-3-en-2-one (STTA) ..... T. HONJYO and T. KIBA 185

NOTES:

The Formation Constants of Some Metal Thiobenzoato- and Thioacetato-Complexes in Dioxane-Water Solvent ..... A. OUCHI, T. TAKEUCHI, Y. TAKAHASHI, and M. NAKATANI 282

An NMR Study of Metal Complexes Containing Acetylacetone and Related Compounds. II. The Preparation and Structure of Mixed Cobalt(III) Complexes Containing Acetylacetone and Amino Acids ..... Y. FUJII and T. EJIRI 283

Organic and Biological

Substituent Effect of Dipole and Dipolarophile in the Reaction of Nitrones with *N*-(Substituted phenyl)maleimides ..... Y. IWAKURA, K. UNO, Suck-Ju HONG, and T. HONGU 192

The Synthesis and Asymmetric Adsorption of an Optically-active Basic Polymer Starting from L-Proline ..... T. YAMASHITA 195

The Syntheses and Reactions of Sulfenyl-substituted Sulfonium Ylides ..... Y. HAYASHI and H. NOZAKI 198

C-C Bond Fission in Carboxamides. Kinetic Studies on Alkaline Hydrolysis of Substituted α-Nitroisobutyranilides ..... H. SAYO, H. OHOMORI, T. UMEDA, and M. MASUI 203

Studies of the Synthesis of Furan Compounds. XXVI. The Reaction of 5-Nitro-2-furimidoylhydrazine with Acid Anhydrides ..... I. HIRAO, Y. KATO, and H. TATEISHI 208

Syntheses of 1,2-Dithiole Derivatives ..... A. CHINONE, K. INOUYE, and M. OHTA 213

Hydrogenation and Hydrogenolysis. XIV. The Hydrogenation of Ethyl *p*-Tolyl Ether over Platinum Metal Catalysts ..... S. NISHIMURA, M. URAMOTO, and T. WATANABE 216

Phytosterols and Triterpenes in the Roots of the "Kidney Bean" (*Phaseolus vulgaris* L.) ..... N. KATSUI, H. MATSUE, T. HIRATA, and T. MASAMUNE 223

The Syntheses of 5-Azidotropolones and Their Electrophilic, Nucleophilic, and Thermal Reactions ..... T. TODA, H. HORINO, and T. NOZOE 226

Palladium-catalyzed Exchange of Allylic Groups of Ethers and Esters with Active Hydrogen Compounds. II ..... K. TAKAHASHI, A. MIYAKE, and G. HATA 230

Studies of Benzoylsulfene. V. The Reaction of Benzoylsulfene with Enamines ..... O. Tsuge, S. Iwanami, and S. Hagio 237

Stereochemical Studies of Monoterpene Compounds. XIII. The Conformational Analysis of the Acetyl Group of 4-Methyl-10-nor-8-oxomenthols by Circular Dichroism ..... T. Suga and S. Watanabe 240

Studies on Nucleosides and Nucleotides. II. Selective Acylation of 5′-Hydroxyl Group of Thymidine ..... O. Mitsunobu, J. Kimura, and Y. Fujisawa 245

The Reaction of Hydrosilanes with Chlorosilanes in the Presence of Grignard Reagents. A New Method of Silicon-Silicon Bond Formation ..... A. Hosomi and H. Sakurai 248

Ring Expansion through a 1,3-Acyl Rearrangement. Reactions of Cyclic Sulfonium Ylides with Acetylenic Compounds ..... M. Higo, T. Sakashita, M. Toyoda, and T. Mukaiyama 250

Structure and Reactivity of Organic Ions in Gas-Phase Radiolysis. III. The Benzenonium Ions Formed by the Reactions of CH_5^+ and $C_2H_5^+$ Ions from Methane with *o*-Xylene ..... Y. Yamamoto, S. Takamuku, and H. Sakurai 255

Linear Conjugated Systems Bearing Aromatic Terminal Groups. VI. Syntheses and Electronic Spectra of 6,6′-Dichrysenylpoly-ynes ..... S. Akiyama and M. Nakagawa 259

Modified Clemmensen Reductions of Keto Groups to Methylene Groups ..... M. Toda, M. Hayashi, Y. Hirata, and S. Yamamura 264

The Epoxidation of Homoallylic Alcohols and the Formation of Sesquiterpene Diols ..... S. Yamamura, M. Iguchi, M. Niwa, and Y. Hirata 266

Syntheses of Benzo[5,6]cyclohept[1,2-*b*]indol-6-ones ..... K. Yamane and K. Fujimori 269

The Kinetics and Mechanism of the Reactions of *N*-Sulfinylanilines with Formic Acid ..... F. Yamada, T. Nishiyama, and T. Emi 271

The Reaction between Hydrocarbon and Hydrogen Sulfide in Silent Electrical Discharge. I. The Reaction of Ethylene or Propylene with Hydrogen Sulfide ..... Y. Nishimura and K. Kawamoto 274

Notes:

The Mass Spectra of *N,N′*-Diarylpiperazines ..... F. Yamada, Y. Fujimoto, and T. Nishiyama 280

The El Reaction of Menthyl and Neomenthyl Tosylates in Aprotic Solvents ..... M. Nojima, M. Yoshimura, and N. Tokura 285

The Jacobsen Reaction and the Acid-Catalyzed *Ortho-para* Interconversion of Iodoanisoles and Iodophenetoles ..... H. Suzuki and M. Yoshida 287

Reaction of Iodobiphenyls and Iodonaphthalenes with Concentrated Sulfuric Acid. Attempted Extension of the Jacobsen Reaction to Polycyclic Systems ..... H. Suzuki and N. Yamamoto 289

The Synthesis of Methyl 2,4,6-Tri-*O*-benzyl-α-D-glucopyranoside ..... S. Koto, Y. Takebe, and S. Zen 291

The Synthesis of Silacyclopentane Derivatives ..... T. Araki, D. Terunuma, and T. Fuse 293

The Reaction of Ethyl Acetoacetate with Benzonitrile in Liquid Ammonia ..... N. Sugiyama, M. Yamamoto, S. Kobayashi, and C. Kashima 296

The Nucleophilic Cyclopropylation of the Condensed Aromatic Ring with Sulfonylcarbanion ..... H. Nozaki, T. Nisimura, and Y. Yamamoto 301

Short Communications

Stereoselective Reactions of Some Anions Derived from 1,3,5-Trithianes ..... M. Fukunaga, K. Arai, H. Iwamura, and M. Ōki 302

Gas Chromatography of Rare Earth Pivaloyltrifluoroacetone Adducts with Tri-*n*-butyl Phosphate and Tri-*n*-octylphosphine Oxide ..... K. Utsunomiya and T. Shigematsu 303

Catalyst Isotope Effect in *n*-Butene Isomerization Catalyzed by Metal Sulfates ..... M. Misono and Y. Yoneda 304

The Reaction of Disodium Tetracarbonylferrate(−II) with Phthaloyl Dichloride. The Formation of Biphthalidylidene ..... T. Mitsudo, Y. Watanabe, M. Tanaka, K. Yamamoto, and Y. Takegami 305

An Unusual Ring Expansion of Lophine to 2,4,6-Triphenyl-*s*-triazine ..... K. Sakai and J. P. Anselme 306

The Fragmentation of an *N*-Pyrryl Nitrene from the Oxidation of 6-Amino-1,4,5,7-tetramethylpyrrolo[3,4-*d*]-pyridazine ..... K. Sakai and J. P. Anselme 307

The CuCl:1,1-Diphenyl-2-picrylhydrazyl Free Radical Complex ..... F. Leh and J. K. S. Wan 308

No. 2

General and Physical

Electronic Spectra and Structures of Organic π-Systems. III. Electronic Spectra of Nitrocyclopentadienide Anion and Formylcyclopentadienide Anion ..... Z. Yoshida, T. Kobayashi, and A. Konishi 309
Electronic Spectra and Structures of Organic π-Systems. IV. Electronic Spectra of Nitropyrroles ..... Z. Yoshida, T. Kobayashi, and H. Yamada 313
Electronic Spectra and Structures of Organic π-Systems. V. SCFMO Calculations of Some Fulvenes and Fulvalenes with the Variable Integrals Methods ..... Z. Yoshida and T. Kobayashi 316
An MO-Theoretical Study of the Decomposition of Hydroperoxides by Sulfonium Compounds and Some Nucleophiles ..... K. Ohkubo and H. Kanaeda 322
The Adsorption of Polyvinylpyrrolidone at the Mercury/Solution Interface ..... T. Yoshida, T. Ohsaka, and S. Tanaka 326
Monolayers of Poly(methyl acrylate) Saponified Partially in Homogeneous and Heterogeneous Systems ..... S. Hironaka and K. Meguro 332
The Effect of Pressure on the Sol-Gel Transformations of Macromolecules ..... K. Suzuki, Y. Taniguchi, and T. Enomoto 336
The Temperature Dependence of the Fractionation of Tritiated Water in an Equilibrium between Crystalline Alum and Its Aqueous Solution ..... H. Tanaka 339
Strain Gauge Electromicrobalance for Surface Tension Measurement ..... M. Koshinuma, A. Nakamura, T. Seimiya, and T. Sasaki 344
Adsorption of Sodium and Calcium Dodecyl Sulfates at the Surface of Their Aqueous Solutions ..... J. Sasaki, K. Tajima, and T. Sasaki 348
On the Viscosities of Mixtures of Oligotrifluorochloroethylene and *n*-Heptadecane ..... N. Yoshida and S. Hamada 351
Study of Dielectric Relaxation Mechanism and Mutual Viscosity in Some Aromatic Compounds ..... N. K. Mehrotra, T. C. Pant, and M.C. Saxena 356
Self-Diffusion of Chloride Ions in Manganese Dichloride Crystallites ..... Y. Sensui 359
The Photo-decomposition of 1-Azidopyrene in the Benzene Solution ..... T. Yamaoka, H. Kashiwagi, and S. Nagakura 361
The Exchange Reaction of Deuterium with the Hydroxyl Groups of Zeolite Catalysts ..... T. Imanaka, Y. Okamoto, K. Takahata, S. Teranishi 366
Abnormal Hyperfine Splitting in the ESR Spectra of α,α,γ,γ-Tetraphenylallyl-type Organic Stable Free Radicals ..... K. Watanabe, J. Yamauchi, H. Ohya-Nishiguchi, Y. Deguchi, and H. Takaki 371
Some Physico-chemical Properties of Vanadium Oxide Supported on Silica or γ-Alumina ..... S. Yoshida, T. Iguchi, S. Ishida, and K. Tarama 376
Monolayers of Poly-γ-benzyl-L-glutamate *N*-Alkylamides ..... A. Suzuki 380
Geometrical Structures of Excited States of Conjugated Molecules: Benzene, Naphthalene, Azulene, and Heptalene ..... Y. Fujimura, H. Yamaguchi, and T. Nakajima 384
The Effects of the Crystal-structural Transformation on the Chemical Behavior of ^{64}Cu Recoil Atoms in α-Copper Phthalocyanine ..... H. Kudo 389
The Chemical Behavior of ^{64}Cu Recoil Atoms in the Mixed System of Copper Phthalocyanine and Metal-free Phthalocyanine ..... H. Kudo 392
Calculation of Optical Rotational Strength by Means of Various Types of Moelcular Orbitals ..... A. Imamura, T. Hirano, C. Nagata, and T. Tsuruta 396
Spin Relaxation Effects on the ESR Spectrum of Gaseous Oxygen Atoms ..... M. Jinguji, Y. Mori, and I. Tanaka 401
Semiconducting Anion-radical Salts Derived from 3,3′,5,5′-Tetrahalo-*p*-diphenoquinones ..... Y. Matsunaga and Y. Narita 408
Studies of Helical Aggregates of Molecules. III. The Bivalent Metal Soaps of Optically Active 12-Hydroxyoctadecanoic Acid ..... T. Tachibana, K. Kayama, and H. Takeno 415
The Polymorphism and Physical Properties of the 1,6-Diaminopyrene-*p*-chloranil and Related Molecular Complexes ..... S. Kotzumi and Y. Matsunaga 423
The Second CMC of the Aqueous Solution of Sodium Dodecyl Sulfate. I. Conductivity ..... M. Miura and M. Kodama 428

Notes:

The Electronic Spectra of the Anion Radical Salts Derived from 2,3-Dicyano-1,4-naphthoquinone ..... Y. Iida 624
Studies on Salt Solution Aerosols. VI. Droplet Size Determination of Aqueous Sodium Sulfate Solution Aerosols by Chemical Spot Method ..... Y. Ueno and I. Sano 626
Gas Chromatographic Determination of Reversible Adsorption of Hydrogen. XI. Reversible Adsorption of Hydrogen over Some Metal Oxides ..... Y. Shigehara and A. Ozaki 634
The Solvent Effect on the Visible Absorption Spectra of the Radical Anion and the Dianion of Anthraquinone ..... M. Fujihira and S. Hayano 644

The Infrared Spectra of the 1-Propynyl Anion ..... I. Kanesaka, K. Takeda, and K. Kawai 650

Analytical and Inorganic

Distribution Studies of Alkali Metal Picrates ..... T. Iwachido 432
Kinetics and Mechanisms of the Reaction of Fe(III) with Variamine Blue, [*N*-(*p*-Methoxyphenyl)phenylenediamine] in Aqueous Perchlorate Media ..... T. Imamura and M. Fujimoto 438
Kinetics and Mechanisms of the Reaction of Tl(III) with Variamine Blue, [*N*-(*p*-Methoxyphenyl)phenylenediamine] in Aqueous Perchlorate Media ..... T. Imamura and M. Fujimoto 442
Polarographic Investigation of Alkali Metal Ions in Hexamethylphosphoramide ..... K. Izutsu, S. Sakura, and T. Fujinaga 445
Electronic Spectra and Electronic Structure of Iron(II) Tetraphenylporphins ..... H. Kobayashi and Y. Yanagawa 450
The Reaction of Tris(acetylacetonato)cobalt(III) with Bromine in Dichloromethane ..... Y. Nakamura, M. Gotani, and S. Kawaguchi 457
Magnetic Moments and Electronic Spectra of Low-spin Cobalt(II) Complexes ..... Y. Nishida and S. Kida 461
Studies on Mixed Chelates. I. Mixed Copper(II) Chelates with *N,N,N',N'*-Tetramethylethylenediamine and a Bidentate Ligand ..... Y. Fukuda and K. Sone 465
Complexes Coordinated by 2,2'-Bipyridine Negative Ion. II. Sodium 2,2'-Bipyridinetetracarbonylchromium, -molybdenum, and -wolfram ..... Y. Kaizu and H. Kobayashi 470
Studies on New Derivatives of 8-Quinolinol as Chelating Agents. I. Syntheses, Coloration Reaction with Metal Ions and Acid Dissociation Constants of Some Azomethine and Aminomethyl Derivatives ..... T. Hata and T. Uno 477
Syntheses of Some Medium Sized Cyclic Triamines and Their Cobalt(III) Complexes ..... H. Koyama and T. Yoshino 481
The Reaction of Bis(acetylacetonato)cobalt(II) with Bromine in Dichloromethane ..... Y. Nakamura, N. Kanehisa, and S. Kawaguchi 485
Reactions of Dibromoalkanes with Dimethyltin Bis(*N,N*-dimethylthioseleno- and Diselenocarbamates) and Related Compounds ..... K. Tanaka, and T. Tanaka 489

Notes:

Effects of $FeCl_3$ on the Graphitizability of Coal Tar Pitch ..... S. Otani and A. Oya 623
Studies on Photo-polarography. V. Theory of Photo-current and Reaction of Aquated Electrons with Scavenger ..... K. Yamashita and H. Imai 628
Low Frequency Vivrational Spectra of Triarylgermanium Pseudohalides ..... T. N. Srivastava and S. K. Tandon 633
The Formation of Ternary Complexes Involving Mercury(II) and Phenolphthalein Complexone ..... T. Nomura, K. Watanabe, and S. Komatsu 640
The Thermal *trans*-to-*cis* Isomerization of $[CrCl_2(en)_2]Cl$ in the Solid Phase ..... C. Sato and S. Hatakeyama 646

Organic and Biological

The Structure of the Pteridine Glycoside from *Aspergillus oryzae* ..... S. Matsuura, M. Yamamoto, and Y. Kaneko 492
Synthetic Reactions by Complex Catalysts. XXIV. A New Catalyst of Copper-Isocyanide Complex for the Michael Addition ..... T. Saegusa, Y. Ito, S. Tomita, and H. Kinoshita 496
Kinetics of the *γ*-Ray Induced Polymerization of Ethylene in 1,2-Dichlorotetrafluoroethane ..... F. Suganuma, M. Hagiwara, H. Mitsui, and T. Kagiya 500
Reactions of Alkylidenetriphenylphosphoranes with Sulfur .... H. Tokunaga, K. Akiba, and N. Inamoto 506
Reaction of Enol Ethers with Carbenes. X. Ring Opening of 2,2-Dichlorocyclopropyl Phenyl Sulfides ..... W. E. Parham, S. Kajigaeshi, and S. H. Groen 509
The Photochemical Decomposition of Benzotriazoles ..... K. Tsujimoto, M. Ohashi, and T. Yonezawa 515
Syntheses of All Isomers of Naphthalenetricarboxylic Acids ..... Y. Dozen 519
The Synthesis of the New 1,4,2-Dithiazine Ring ..... K. Hasegawa, and S. Hirooka 525
The Constituents of *Arthraxon hispidus Makino, Miscanthus tinctorius Hackel, Miscanthus sinensis Anderss,* and *Phragmites communis Trinius* ..... M. Kaneta and N. Sugiyama 528
The Synthesis of Purine Nucleosides of L-Mycarose and L-Cladinose ..... S. Koto, S. Zen, S. Omura, and T. Hata 532
The Reaction of Diaryl Disulfides with the Cyanide Ion ..... K. Tanaka, J. Hayami, and A. Kaji 536
The Reactions of Metal Acetylacetonates and Related Compounds with 2,2-Diphenyl-1-picrylhydrazyl ..... K. Uehara, K. Kamei, M. Tanaka, and N. Murata 540
Stereochemical Studies of Monoterpene Compounds. XIV. The Rotational Conformation of the Acetyl and the Formyl Groups of Monoterpene *α,β*-Unsaturated Carbonyl Compounds ..... T. Suga, K. Imamura, and T. Shishibori 545

The Photochemical Reduction of Nitrobenzene and Its Reduction Intermediates. X. The Photochemical Reduction of the Monosubstituted Nitrobenzenes in 2-Propanol ..... S. Hashimoto and K. Kano 549
Synthesis of Chelating Agents. VIII. Synthesis and Acid Dissociation of 3,3-Dimethylbutane-1,2-dinitrilo-*N,N,N',N'*-tetraacetic Acid ..... Y. Yanagihara, T. Yano, H. Kobayashi, and K. Ueno 554
Studies on Stable Free Radicals. VII. The Mechanism for Cyclization Reaction of α-Amino Nitriles with Carbonyl Compounds ..... T. Toda, S. Morimura, and K. Murayama 557
Studies on Mannan and Related Compounds. I. The Purification of Konjac Mannan ..... N. Sugiyama, H. Shimahara, and T. Andoh 561
Aroyl Arenesulfonyl Peroxides. III. Thermal Decomposition of *p*-Chlorobenzoyl *p*-Toluenesulfonyl Peroxide ..... R. Hisada, M. Kobayashi, and H. Minato 564
The Reduction of Chlorodeoxy Sugars by Tributyltin Hydride ..... H. Arita, N. Ueda, and Y. Matsushima 567
Stereochemical Studies of Monoterpene Compounds. XV. A Conformational Study of Carvomenthone Derivatives by Means of Temperature-dependent Circular Dichroism ..... T. Suga and S. Watanabe 570
A New Steroid with an Unnatural Configuration: 8α,14β-Progesterone ..... F. Mukawa and W. Nagata 574
Studies on Geometrical Isomerism by Nuclear Magnetic Resonance. V. Stereochemistry of 5-Substituted 4-Alkoxycarbonyl-2-carbamoylimino-1,3-oxathiolanes ..... T. Hayashi, M. Akano, T. Yokono, J. Uzawa, S. Kambe, and H. Midorikawa 578
Reactions of 5*N*-(1,2,3-Triazol-1-yl)tropolones ..... H. Horino and T. Toda 584
The Synthesis of 2,3-Dimethyl-3-(5-bromo-2-methoxy-4-methylphenyl)cyclohexene, a Potentially Useful Intermediate for the Syntheses of Aplysin and Related Sesquiterpenes ..... K. Yamada, H. Yazawa, and Y. Hirata 587
Solvolysis of Organic Phosphates. V. Participation of the Neighboring Groups and Effects of Metal Ions in the Hydrolysis of 3-Hydroxy-2-pyridylmethyl Phosphate ..... Y. Murakami, J. Sunamoto, and H. Ishizu 590
The Rearrangement of 2α-Hydroxy-10β-pinan-3-one with Acetic Anhydride ..... T. Hirata 599

Notes:

Formation of the Boron Chelates in the Sodium Borohydride Reduction of the Schiff Bases ..... T. Tanaka, M. Koyama, S. Ikegami, and M. Koga 630
Studies on Stable Free Radicals. VIII. The Synthesis and Oxidation of Hindered 4-Oxopiperidine Derivatives ..... T. Yoshioka, S. Higashida, and K. Murayama 636
A Novel Synthesis of 3,4-Benzotropolone ..... M. Sato, J. Tsunetsugu, and S. Ebine 638
Some Reactions of Tetrafluorobenzyne with Halogens and Ethers, and with Alcohols ..... S. Hayashi and N. Ishikawa 642
Reactions of Grignard Reagents with Chromium(IV) *t*-Butoxide: Unstable Organochromium(IV) Intermediates ..... T. Tsuda and J. K. Kochi 648

Applied

Preparation of Cyclamenaldehyde by Selective Hydrogenation in Some Cobalt Carbonyl Complex Catalysts under Oxo Conditions ..... K. Kogami, O. Takahashi, and J. Kumanotani 604
Metal Catalysts Supported on Zeolite. I. A Study on Platinum Particles Distribution ..... T. Kubo, H. Arai, H. Tominaga, and T. Kunugi 607
Metal Catalysts Supported on Zeolite. II. Dehydrogenation of Cyclohexane and Hydrodemethylation of Toluene over Zeolite-Supported Platinum Catalysts ..... T. Kubo, H. Arai, H. Tominaga, and T. Kunugi 613
Structural Effects on the Properties of Nonionic Surfactants. I. The Synthesis and Some Surface Activities of Acetal Type Homogeneous Nonionics ..... T. Kuwamura and H. Takahashi 617

Short Communications

Formation of Ethylenic Compounds by the Decomposition of Cuprated Sulfur Compounds ..... T. Mukaiyama, K. Narasaka, and M. Furusato 652
Studies of the Basic Sites of the Silica-Alumina Surface by Means of the Adsorption of Copper(II) Complexes with 2,2'-Bipyridine ..... K. Takimoto and M. Miura 653
p-Nitrophenyl Phosphate as a Phosphorylating Reagent in Nucleotide Synthesis ..... T. Hata and Kyu-Jang Chong 654

No. 3

General and Physical

Butadiene Formation from Ethanol over Silica-Magnesia Catalysts ..... H. Niiyama, S. Morii, and E. Echigoya 655
Photodecomposition of Vinyl Iodide in Gas Phase ..... S. Yamashita, S. Noguchi, and T. Hayakawa 659

Interaction of Metal Porphyrins with Molecular Oxygen in Solutions.....K. Yamamoto and T. Kwan 664

The Intermolecular Potential of Hydrocarbon Dimers as Examined by the Perturbation Theory Including Exchange Energy in the PPP Approximation.....H. Fujita and A. Imamura 668

The Abnormal Absorption Intensity of the C–H Stretching Vibration Band in Chloroform Vapor. I. The CNDO Calculation Involving the 3*d* Orbitals.....T. Miyazaki, T. Shigetani, and H. Yamamoto 678

The Magnetic Properties of $Cu_3Cl_6(C_6H_7NO)_2 \cdot 2H_2O$....H. Miyoshi, H. Ohya-Nishiguchi, and Y. Deguchi 682

Polarographic Studies on Substituted 2,2′-Bipyridyl *N*-Oxides.....S. S. Katiyar, M. Lalithambika, and R. P. Shukla 685

Structure of the Vanadium-Potassium Catalyst during the Oxidation of Sulfur Dioxide and the Oxidation Mechanism.....A. Kato, K. Tomoda, I. Mochida, and T. Seiyama 690

The Calculation of the Rates of Intramolecular Nonradiative Transitions in Benzene.....N. Shimakura, Y. Fujimura, and T. Nakajima 695

The Heat of Adsorption from Solution. I. The Heat of Adsorption of Benzene on Silica Gel from the Benzene-Cyclohexane Solution.....T. Morimoto and H. Naono 700

A Chlorine NQR Study of Some Perchloro Compounds.....M. Hashimoto and K. Mano 706

Photoemission of Ion Radical Salts. Benzonitrile- and Triphenylene-Alkali Metal Complexes.....H. Kawamura and H. Inokuchi 710

Magnetic Properties of Some Iminoxyl Polyradicals. III. Exchange Interaction in Iminoxyl Biradicals.....A. Nakajima, H. Ohya-Nishiguchi, and Y. Deguchi 713

The Laser Photolysis of Methylene Blue in the Presence of *p*-Chlorophenylglycine.....K. Obi and H. Makino 717

Excimer and Monomer Defect Emissions of Perylene and Pyrene Crystals as Studied by the Nanosecond Time-resolved Spectroscopy Technique.....A. Inoue, K. Yoshihara, T. Kasuya, and S. Nagakura 720

The Dye-sensitized Photooxygenation of Hexamethyleneammonium Hexamethylenedithiocarbamate by Xanthene Dyes.....T. Yamase, H. Kokado, and E. Inoue 726

The Microwave Spectrum of *trans*-Ethylmethylsilane.....M. Hayashi and C. Matsumura 732

Molecular Structures of Acetyl Chloride and Acetyl Bromide as Determined by Gas Electron Diffraction.....S. Tsuchiya and M. Kimura 736

Electronic Spectra and Structures of Organic π-Systems. VI. Electronic States of Diazomethane, Ketene, Diazocyclopentadiene, and Benzenediazonium Ion.....Z. Yoshida and T. Kobayashi 742

Electronic Spectra and Structures of Organic π-Systems. VII. Electronic States of Benzoylium, Acryloylium, and Cinnamoylium Ions.....Z. Yoshida and T. Kobayashi 749

The Benzene-photosensitized Decomposition of Carbonyl Sulfide in a Cyclohexane Solution.....S. Sato, H. Miyamoto, S. Hirokami, and S. Tsunashima 754

Amino Wagging of the *tert*-Butylamine in $\tilde{A}$ Electronic State..A. Y. Hirakawa, H. Miyazaki, and M. Tsuboi 757

Laser Photolysis Studies on the Formation of Solvated Ion Radicals in the Pyrene—*N,N*-Dimethylaniline System in Various Solvents.....Y. Taniguchi, Y. Nishina, and N. Mataga 764

The Diffuse Reflection Spectra of Bentonites Colored with Various Aromatic Compounds and Related Ion-radical Salts.....Y. Matsunaga 770

The Electric Conductivity of the H_2O–B_2O_3 Melt.....H. Kodama, T. Yokokawa, and K. Niwa 776

The Characterization of the Electronic Spectra of Heterocyclic Amine *N*-Oxides by Means of the Non-Aqueous Oxidation and Reduction Potentials and the Substituent Effects on Them.....H. Miyazaki, T. Kubota, and M. Yamakawa 780

Dipole Moment and Force Constants of NSCl from Microwave Spectrum.....S. Mizumoto, J. Izumi, T. Beppu, and E. Hirota 786

Notes:

The Catalytic Decomposition of Nitrous Oxide on Titanium Dioxide; Anatase and Rutile.....Y. Onishi 922

ESR Spectrum of Bromopyridines Irradiated with Ultraviolet Light. Confirmation of Pyridyl Radical Formation in Irradiated Pyridine and Their Formation Mechanism.....K. Tsuji and T. Seiki 923

The Effect of the Shield Voltage on Appearance Potential Measurements Using a Mass Spectrometer.....S. Tajima, Y. Shimizu, and T. Tsuchiya 931

OH Bending Vibrations and Hydrogen Bond in Crystalline *p*-Hydroxybenzaldehyde.....A. Aihara and Y. Shirota 935

Lamellar Reactions of Graphite with Aluminum Halides.....T. Sasa, Y. Takahashi, and T. Mukaibo 937

Hydrogen Transfer Reaction between Alcohols and Acetone.....H. Niiyama and E. Echigoya 938

Activation Parameters of the Electrode Reaction of *trans*-1,2-Cyclohexanediaminetetraacetatochromate(III) Complex.....N. Tanaka, T. Tomita, and A. Yamada 940

Rotational Isomerism in Epihalogenohydrin.....M. Hayashi, K. Hamo, K. Ohno, and H. Murata 949

Molecular Vibrations and Force Fields of Alkyl Sulfides. III. Infrared Spectra of Methyl Ethyl Sulfide.....M. Ohsaku, Y. Shiro, and H. Murata 954

Molecular Vibrations and Force Fields of Alkyl Sulfides. IV. Infrared Spectra of Diethyl Sulfide.....M. Ohsaku, Y. Shiro, and H. Murata 956

Orientation Patterns in Nematic Liquid Crystal.....M. Sukigara, O. Nagasaki, and K. Honda 959

The MCD Spectrum of the Tropylium Cation.....A. Tajiri and M. Hatano 962

Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. II. Kofler's Ternary Molecular Complex.....Y. Matsunaga and G. Saito 963

Analytical and Inorganic

Modrant Blue 31 as a New Fluorometric Reagent for Aluminum, Gallium, and Scandium.....K. Hiraki 789

Copper(II) Chelates of 2,4,6-Heptanetrione and Its Homologues.....F. Sagara, H. Kobayashi, and K. Ueno 794

Oxovanadium (IV) Complexes of Schiff Bases Obtained from Salicylaldehyde Derivatives and Arylamines.....Y. Kuge and S. Yamada 799

Stereoselective Formation of Isomers of the *Bis*(L-aspartato)-L-(or D-)alaninatocobaltate (III) Complex.....T. Matsuda, T. Okumoto, and M. Shibata 802

Stereochemical Studies of Metal Chelates. VI. The Separation and Stereochemistry of Isomers of Dichloro(3*S*, 8*S*)-bimethyltriethylenetetramine)cobalt(III) Perchlorate.....M. Saburi and S. Yoshikawa 806

Chemical Studies of Minerals Containing Rarer Elements from the Far East District. LXV. Pollucite from Nagatare, Fukuoka Prefecture, Japan.....K. Sakurai, A. Kato, N. Kuwano, and K. Nagashima 812

Notes:

1,2,3-Benzotriazole Complexes of Palladium(II).....Y. Watanabe, T. Mitsudo, M. Tanaka, K. Yamamoto, and K. Takegami 925

The Kinetics of the Electron-transfer Reactions between Several Chloropentakis(alkylamine)cobalt (III) Complexes and Iron(II).....K. Ohashi 947

Organic and Biological

Studies on the Isomerization of 2,4-Dinitrophenylhydrazones of Some Aliphatic α-Keto Acids and the Preparation of Their Geometrical Isomers.....H. Katsuki, C. Tanegashima, M. Tokushige, and S. Tanaka 813

The Dissociation Constants of Weak Acids in a Methanol-Water Mixture.....Y. Kondo and N. Tokura 818

A Condideration of Orbital Interaction in Nitrogen Extrusions of Cyclic Azo Compounds.....S. Inagaki and K. Fukui 824

Synthetic Reactions by Complex Catalysts. XXV. The Copper-catalyzed Reaction of Allyl Isocyanide with Carbonyl Compounds and Olefins. Syntheses of 4-Vinyl-2-oxazoline and 5-Vinyl-1-pyrroline Derivatives.....T. Saegusa, I. Murase, and Y. Ito 830

Studies of Thioiminocarbonates. II. The Cyanide Ion-catalyzed Addition of Alcohols to Thiocyanates.....K. Tanaka 834

Isolation of the Intermediate in the Tricyanovinylation of Indole and *N*-Methylindole.....Y. Shirota, S. Ezaki, S. Kusabayashi, and H. Mikawa 836

The Cope Rearrangement of Bridged Homotropilidenes Studied by MINDO Methods.....H. Iwamura, K. Morio, and T. L. Kunii 841

The Photochemical Reaction of α-Diketones.....K. Maruyama, K. Ono, and J. Osugi 847

The Photochemical Reduction of Nitrobenzene and Its Reduction Intermediates. XI. The Photochemical Reduction of Azobenzene in Isopropyl Alcohol.....S. Hashimoto and K. Kano 852

Reactions Leading to 1,2-Dibenzoylethanes: The Dehalogenation of Phenacyl Bromide and the Photolysis of Methyl Phenacyl Sulfoxide.....H. Nozaki, T. Shirafuji, K. Kuno, and Y. Yamamoto 856

Thallium(III) Chloride Tetrahydrate as a Lewis Acid Catalyst for Aromatic Alkylation and Acylation.....S. Uemura, K. Sohma, and M. Okano 860

Studies of Peptide Antibiotics. XXVII. Synthesis of an Analog of Gramicidin S Containing a Glycine Residue in Place of a Proline.....S. Matsuura, M. Waki, and N. Izumiya 863

Sulfenylation of Active Methylene Compounds with Sulfenamides.....T. Kumamoto, S. Kobayashi, and T. Mukaiyama 866

The Apparent Molar Volumes of Tetraalkylammonium Halides in Liquid Sulfur Dioxide.....K. Uosaki, Y. Kondo, and N. Tokura 871

Linear Conjugated Systems Bearing Aromatic Terminal Groups. VII. Syntheses and Electronic Spectra of 1,1′- and 2,2′-Dipyrenylpoly-ynes ..... K. Nakasuji, S. Akiyama, and M. Nakagawa 875

Linear Conjugated Systems Bearing Aromatic Terminal Groups. VIII. Syntheses and Electronic Spectra of Bis-(4-biphenylyl)- and 2,2′-difluorenylpoly-ynes ..... K. Nakasuji, S. Akiyama, and M. Nakagawa 883

Molecular Orbital Treatment of *Para* Orientation in the Diels-Alder Reactions of 2-Substituted Butadienes with Methyl Acrylate ..... T. Inukai, H. Sato, and T. Kojima 891

The Palladium-catalyzed Ferrocenylation of Olefins ..... A. Kasahara, T. Izumi, G. Saito, M. Yodono, R. Saito, and Y. Goto 895

Spectroscopic Studies on the Tautomers of Heptane-2,4,6-trione and Its Methylated Homologues ..... F. Sagara, H. Kobayashi, and K. Ueno 900

The Crystal Structure of 1-Ethyl-5-bromouracil. I. The Crystal Structure of the Form I Crystal of 1-Ethyl-5-bromouracil ..... H. Mizuno, T. Fujiwara, and K. Tomita 905

The Crystal Structure of 1-Ethyl-5-bromouracil. II. The Crystal Structure of the Form II Crystal of 1-Ethyl-5-bromouracil ..... T. Tsukihara, T. Ashida, and M. Kakudo 909

The Syntheses of 1,3-Oxathiolan-5-one Derivatives ..... S. Satsumabayashi, S. Irioka, H. Kudo, K. Tsujimoto, and S. Motoki 913

Asymmetric Reactions. VII. Stereoselectivities in Phenyllithium and Grignard Reactions with Tetrahydrofurfural Derivatives ..... J. Yoshimura, Y. Ohgo, K. Ajisaka, and Y. Konda 916

Notes:

The Synthesis of Nucleoside and Nucleotide Analogs ..... T. Seita, K. Yamauchi, M. Kinoshita, and M. Imoto 926

The Mass Spectra of 2-Aryl-5-methyl-1,2,3-oxathiazolidine-2-oxides ..... T. Nishiyama, T. Fujimoto, and F. Yamada 928

The Occurrence of Yangonin, 4-Methoxy-6-(*p*-methoxystyryl)-2-pyrone, in *Ranunculaceae* ..... T. Shibata, T. Shibuya, and K. Doi 930

Asymmetric Reactions. VI. Asymmetric Hydrogenation of Atropate Catalyzed by Cyanocobalt-Optically Active Diamine Complex ..... Y. Ohgo, K. Kobayashi, S. Takeuchi, and J. Yoshimura 933

The Spearation of α- and α-L-Aspartyl-L-phenylalanine Methyl Ester with Aromatic Acids ..... Y. Ariyoshi and N. Sato 942

Reaction of Norbornene with Butadiene Catalyzed by Low-valent Cobalt, Giving *trans*-1-(*exo*-Norbornyl)-1,3-butadiene ..... H. Sato and T. Inukai 944

Cycloaddition of Spiro[2.4]hepta-4,6-diene to Tropone ..... H. Tanida, T. Yano, and M. Ueyama 946

The Carbonylation of 1,1′-Bis(chloromercuri)ferrocene with Palladium Salt: A Synthesis of [1.1]Ferrocenophane-1,12-dione ..... A. Kasahara, T. Izumi, and S. Ohnishi 951

Thiocyanoacetate. III. The Synthesis of 2-Hydrazono-4-thiazolidinone Derivatives ..... S. Kambe and T. Hayashi 952

Cyclic Disulfides. The Reaction of 1,2-Dithiaacenaphthene with Carbenoids ..... S. Tamagaki and S. Oae 960

Short Communications

Small Ring Compounds. I. Anodic Oxidation of 2,3-Dicarbethoxy-cyclopropanecarboxylic Acid ..... I. Minato, T. Takasuka, K. Kimura, T. Sakakibara, and Y. Odaira 965

The Photochemical Reaction of *p*-Benzoquinone in Water ..... S. Hashimoto, K. Kano, and H. Okamoto 966

A Convenient Synthesis of Symmetrical and Unsymmetrical Biphenyls by the Oxidation of *N*-Aryl-*N*′-(tri-*n*-butylstannyl)hydrazines ..... H. Ishikawa and T. Mukaiyama 967

The Gas Chromatographic Separation of Germanium Chlorobromides ..... Y. Makide and N. Saito 968

No. 4

General and Physical

Far Infrared Spectra and Internal-Rotation Potential of Ethyl Methyl Ether ..... T. Kitagawa, K. Ohno, H. Sugeta, and T. Miyazawa 969

Studies of Salt Solution Aerosols. VIII. The Effect of Humidity on the Stability of Spray-dried Na_2SO_4 Aerosol and an Estimate of the Particle Density ..... Y. Ueno and I. Sano 975

Hydrogen Exchange Reactions between Olefins or an Olefin and Molecular Hydrogen over Alumina Studied by Microwave Spectroscopy ..... Y. Sakurai, T. Onishi, and K. Tamaru 980

The Trapping Efficiency for Electrons in Polar Glasses at 77 K ..... T. Sawai, Y. Shinozaki, and G. Meshitsuka 984

Energy Transfer Concerning the Lowest Triplet State of Tetracyanobenzene with Methyl-Substituted Benzenes ..... T. KOBAYASHI and S. NAGAKURA 987
Polarized Absorption Spectrum of the Second S→T Transition of Phenazine Crystals..N. MIKAMI and M. ITO 992
Vibrational Analysis of Electronic Transition Bands of Coronene..K. OHNO, T. KAJIWARA, and H. INOKUCHI 996
Polarized Absorption Spectra of TCNNQ-Aromatic Hydrocarbon Molecular Complexes..... ..... Y. J. I'HAYA, T. YUNOKI, and N. SUZUKI 1004
Light-scattering Studies of the Interaction of Sodium Chondroitin Sulfate C with Bovine Serum Albumin .. .. M. NAKAGAKI and Y. SANO 1011
The Polarized Absorption Spectra of Some α-Aminoanthraquinones..... ..... H. INOUE, T. HOSHI, J. YOSHINO, and Y. TANIZAKI 1018
Symmetry Rule for Predicting Bond Distortions in Conjugated Hydrocarbons ....T. NAKAJIMA, A. TOYOTA, and S. FUJII 1022
ESR Studies of the Conformational Interconversion of the 9,10-Dihydrophenanthrene Radical Anion and Its Related Compounds .....M. IWAIZUMI, T. MATSUZAKI, and T. ISOBE 1030
The Reactions between a Rhenium Filament and Nitric Oxide at High Temperatures and Low Pressures.. ..... T. TAMURA 1034
Effects of Chain Molecules on the Temperature of the Maximum Density of Water..... ..... M. SAKURAI, T. KOMATSU, and T. NAKAGAWA 1038
Interaction of 1,2-Dichloroethane with Benzene and other Aromatic Hydrocarbons..... ..... A. MORITA, H. TAKAHASHI, and K. HIGASI 1045
Radiolysis of Mixtures of Hydrocarbons and Ammonia. I. Formation of Ethylamine from a Mixture of Ethylene and Ammonia ..... O. TOKUNAGA, K. HAMANOUE, J. OKAMOTO, and A. DANNO 1050
Magnetic Properties of Copper(II) Complexes of 6-Aminopurine and 6-Hydroxypurine..... ..... T. ASAKAWA, M. INOUE, K. HARA, and M. KUBO 1054
Infrared Intensities of Crystalline HCN and DCN .....M. UYEMURA, and S. MAEDA 1081

NOTES:

The Nonstoichiometry of Gadolinium Ditelluride .....K. NIIHARA, T. SHISHIDO, and S. YAJIMA 1239
The Formation of Solid Addition Compounds between Several *para*-Substituted Benzoic Acids and Piperidine .....S. KASHINO, K. KANEI, and S. HASEGAWA 1247
An Interpretation of Mass Spectra by Simple LCAO MO Calculation. II. Derivatives of Benzene and Chlorobenzene ..... S. TAJIMA, Y. NIWA, N. WASADA, and T. TSUCHIYA 1250
The Effect of the Temperature on the Formation of Solvated Electrons and Hydrogen in the Photolysis of a Methanolic Solution of Potassium Iodide .....H. SEKI, H. ISHIDA, and M. IMAMURA 1260
Kinetic Studies of Association and Dissociation Reactions of Congo Red by the Temperature-Jump Method ..... T. YASUNAGA and S. NISHIKAWA 1262
The Mass Spectra of Several Ferrocenoyl Compounds.....H. IMAI 1264
Multiple-Quantum Transitions in the EPR Spectra of Atomic Sulfur..... ..... M. JINGUJI, Y. MORI, and I. TANAKA 1266

Analytical and Inorganic

The Chemical Structures of Glasses of the $NaPO_3$-Sb_2O_3 and $NaPO_3$-Sb_2O_5 Systems ....M. WATANABE and M. KATO 1058
Preparation and Properties of Iron(II) Complexes with Tetraoxime Analogues..... ..... J. BACKES, I. MASUDA, and K. SHINRA 1061
Derivatographic Studies on Transition Metal Complexes. VII. Thermal *cis*, *trans*-to-*trans*, *cis* Isomerization of $[CoCl_2(NH_3)_3en]Br \cdot H_2O$ in Solid Phase.....R. TSUCHIYA, M. SUZUKI, and E. KYUNO 1065
Formation of Uranium Sesquicarbide by the Partial Decarburization of Uranium Dicarbide Using Magnesium Oxide ..... H. TAGAWA 1069
Kinetic Studies of the Electron-Transfer Reaction in Iron(II) and Iron(III) Systems. V. The Reaction in Mixed Solvents of Methanol and Water.....G. WADA and A. ENDO 1073
Preparation and Properties of *N*,*N*-Dialkylethylenediamine *N*-Oxide Complexes of Nickel(II), Copper(II), and Cobalt(III) .....S. KIDA and T. ONIKI 1078
Stereochemical Studies of Metal Chelates. VII. The Preparation, Stereochemistry, and Circular Dichloism of Dinitrocobalt(III) Complexes with (3*S*,8*S*)-Dimethyltriethylenetetramine and Related Tetramines.... .....M. SABURI, T. SAWAI, and S. YOSHIKAWA 1086
Behavior of Alkali Metals in the Hydrogen Flame Ionization Detector for Ultra-Micro Analysis of Alkali and Alkaline Earth Metals ..... M. YAMADA, S. SUZUKI, and S. ARAKI 1093
The Synthesis and Properties of *trans*-$[CrCl_2(NH_3)_4]Cl \cdot H_2O$ .....K. NAGASE and N. TANAKA 1097
Thermochromisms of Some β-Diketone Chelate Complexes of Copper(II) in Pure Pyridine..... .....H. YOKOI, M. SAI, and T. ISOBE 1100

NOTE:

The ^{60}Co Recoil Reactions in the Benzene Solutions of Tris(nitrosonaphtholato)cobalt(III)..... ..... T. TOMINAGA and T. SAKAI 1237

Organic and Biological

Activation of Iron-Alkyl Bonds in Dialkylbis(dipyridyl)iron(II) by Interaction with Olefins ..... T. YAMAMOTO, A. YAMAMOTO, and S. IKEDA 1104

The Mechanism of Vinyl Polymerization by Dialkylbis(dipyridyl)iron(II) ..... T. YAMAMOTO, A. YAMAMOTO, and S. IKEDA 1111

The Photochemical Degradation of Diphenyl Sulfone-1-^{14}C ..... M. NAKAI, N. FURUKAWA, S. OAE, and T. NAKABAYASHI 1117

Nitrate as an Oxidant in the Reaction of Silver(I) Salts with Grignard Reagents ..... M. TAMURA and J. K. KOCHI 1120

The Reaction Mechanism of 2-Dimethoxymethyl-3-methoxypropionitrile with Acetamidine. I. A Revised Structure of the Intermediate ..... T. NISHINO, M. KIYOKAWA, Y. MIICHI, and K. TOKUYAMA 1127

Study on Oxidation of Chalcones with Lead Tetraacetate and Manganic Acetate ..... K. KUROSAWA and J. HIGUCHI 1132

Synthesis and Conformation of Cyclopropane Intermediates in the Total Synthesis of Illudin M and S..... T. MATSUMOTO, H. SHIRAHAMA, A. ICHIHARA, H. SHIN, S. KAGAWA, T. HISAMITSU, T. KAMADA, and F. SAKAN 1136

Synthesis of 5,5-Dimethyl-4-acetoxy-2-cyclopentenone and 5-Methyl-*t*-5-acetoxymethyl-*r*-4-acetoxy-2-cyclopentenone Intermediates for Illudin M and S..... T. MATSUMOTO, H. SHIRAHAMA, A. ICHIHARA, H. SHIN, S. KAGAWA, F. SAKAN, S. NISHIDA, S. MATSUMOTO, K. SAITO, and H. HASHIMOTO 1140

Synthesis of 5,5-Dimethyl-4-acetoxy-2-cyclopentenone, an Intermediate in the Total Synthesis of Illudin M, through Sulfur Compounds. A Novel Intramolecular Migration of Ethylenedioxy Group ..... T. MATSUMOTO, H. SHIRAHAMA, A. ICHIHARA, H. SHIN, and S. KAGAWA 1144

The Stereochemistry of Nucleophilic Addition. IV. The Condensation of 2,2,6-Trimethylcyclohexanone with *t*-Butyl Acetate in the Presence of Lithium Amide..... T. MATSUMOTO, G. SAKATA, Y. TACHIBANA, and K. FUKUI 1147

Carbon-13 Magnetic Resonance Chemical Shifts in Alkylbiphenyls ..... H. HASEGAWA, M. IMANARI, and K. ISHIZU 1153

Olefin Disproportionation by Rhenium, Tungsten, and Molybdenum Based Catalysts. Effect of the Addition of Oxygen ..... Y. UCHIDA, M. HIDAI, and T. TATSUMI 1158

Studies on Hydroxy Amino Acids. IV. Syntheses of Several Peptides Containing Aziridinecarboxylic Acid Derived from the Corresponding Hydroxy Amino Acid Derivatives ..... Y. NAKAGAWA, T. TSUNO, K. NAKAJIMA, M. IWAI, H. KAWAI, and K. OKAWA 1162

Stereochemical Studies and Synthetic Applications of Bis-*β*-keto Sulfoxides.... Y. YAMAMOTO and H. NOZAKI 1167

Photochemical Reactions of Aromatic Compounds. IX. Photochemical Reactions of Dimethylaniline with Halobenzenes ..... C. PAC, T. TOSA, and H. SAKURAI 1169

The Photochemical Reaction of Some Ketoximes and Their Derivatives ..... T. SATO, T. INOUE, and K. YAMAMOTO 1176

The Preparation and Deamination of 1-*t*-Butyl-3-amino-, 1-*t*-Butyl-3-aminomethyl-, and 1-*t*-Butyl-2-aminomethylazetidine ..... T-Y. CHEN, M-H. HUNG, P-T. CHEN, and M. OHTA 1179

Palladium-catalyzed Reactions of 1,3-Dienes with Active Methylene Compounds. IV. Palladium-diphosphine Complex Catalysts ..... K. TAKAHASHI, A. MIYAKE, and G. HATA 1183

Phenolyses of 1-Adamantyl Chloride, Bromide, and *p*-Toluenesulfonate in Binary Mixtures of Phenol with Benzene. The Rates and the Product Distribution..... K. OKAMOTO, K. MATSUBARA, and T. KINOSHITA 1191

The Substituent Effect. I. Normal Substituent Constants from the Hydrolysis of Substituted-benzyl Benzoates ..... Y. YUKAWA, Y. TSUNO, and M. SAWADA 1198

The Substituent Effect. II. Normal Substituent Constants for Polynuclear Aryls from the Hydrolysis of Arylcarbinyl Benzoates ..... M. SAWADA, Y. TSUNO, and Y. YUKAWA 1206

The Substituent Effect. III. The Basicities of Polynuclear Aryl Methyl Ketones ..... Y. YUKAWA, Y. TSUNO, and M. SAWADA 1210

The Base-catalyzed Condensation of α-Haloaldehydes with Dichloroacetates ..... A. TAKEDA, S. TSUBOI, S. WADA, and H. KATO 1217

The Accelerated Reaction of 2,2-Diphenyl-1-picrylhydrazyl with Cupric 3-(1-Butenyl)-2,4-pentanedionate in Frozen Solutions and Its ESR Spectra ..... K. UEHARA, K. KAMEI, M. TANAKA, and N. MURATA 1221

Oxygen Exchange of Benzenesulfinic Acids in Water..... M. KOBAYASHI, H. MINATO, and Y. OGI 1224

Aminosugars. XIX. On the Structure of 2-Deoxy-2-guanidino-D-glucose..... J. YOSHIMURA, T. SEKIYA, and T. IIDA 1227

Ionic Decomposition of Phenylazotriphenylmethane in Trifluoroacetic Acid ..... N. KAMIGATA, M. KOBAYASHI, and H. MINATO 1231

NOTES:

Properties of Polysarcosine Dodecylamide of Low Molecular Weight..... A. SUZUKI 1236

Photochemical Reactions of Diphenylacetylene with Enaminoesters ..... M. Kawanisi, K. Matsunaga, and N. Miyamoto 1240
Biogenesis of the Essential Oils in Camphor Trees. XXX. On the Components of the Essential Oil of *Cinnamomum reticulatum* Hay. in Taiwan ..... Y. Fujita and S. Fujita 1242
Studies of the Derivatives of Thiiranes. I. Synthesis of Some New Sulfonyl Compounds from 2-Chloromethylthiirane ..... T. Kuwamura, E. Kameyama, and M. Nakajima 1244
Hydrogen-Deuterium Exchange in 1,4,5- and 1,3,5-Trimethyltetrazolium Iodides ..... T. Ishida, S. Fujimori, K. Nabika, K. Sisido, and S. Kozima 1246
Cyanomethylation Products of *dl*- and *meso*-Diphenylethylenediamines ..... T. Yano, H. Kobayashi, and K. Ueno 1249
Reactions of 2,4,4,6-Tetrabromo-2,5-cyclohexadien-1-one with Alkenes in the Presence of Weak Bases ..... M. Tsubota, M. Iso, and K. Suzuki 1252
p-Nitrophenyl Formate as a Reagent for Preparing *N*-Formyl-hexosamines ..... K. Yamamoto 1253
Oxazolidone Derivatives of Hydroxyamino Acids. VII. Syntheses and Properties of DL-*trans*-3-Benzoyl-5-methyl-2-oxo-oxazolidine-4-carboxylic Acid and Its Derivatives ..... T. Inui 1254
The Addition of Ferrocenylpalladium Chloride to Conjugated Dienes ..... A. Kasahara and T. Izumi 1256
Alkoxysilanes. VI. The Preparation of Alkoxysiloxy Derivatives of Zirconium and Tin ..... Y. Abe, K. Hayama, and I. Kijima 1258
Tracer Study of the Reaction of *p*-Toluenesulfinyl Chloride-^{36}Cl with Chloramine-T ..... S. Oae, M. Nakai, and N. Furukawa 1268

Short Communications

p-Quinols from the Nitration Product of Dihaloprehnitenes ..... H. Suzuki and K. Nakamura 1270
A Long-range Effect of Weaker π-Accepting Ligands, $M(C_6H_5)_3$ (M=P, As, and Sb), on the ^{119}Sn-Mössbauer Quadrupole Splitting in the R_3Sn–$Mn(CO)_4M(C_6H_5)_3$ Compounds ..... S. Onaka and H. Sano 1271
Ionic Photodissociation of Some Weak Charge Transfer Complexes of Tetracyanoethylene with n-Type Donor Molecules ..... Y. Achiba, S. Katsumata, and K. Kimura 1272
Observation of Triplet-Triplet Absorption Spectra of Nitronaphthalenes by Means of Flash Excitation Technique ..... N. Kanamaru, S. Okajima, and K. Kimura 1273
Stereospecific Dehydrobromination of *dl*- and *meso*-2,3-Dibromobutanes over Solid Catalysts ..... M. Misono and Y. Yoneda 1274

No. 5

General and Physical

Electrochemical Fluorination of *N*-Nitrosodiethylamine ..... N. Watanabe, M. Haruta, and B. Chang 1275
Magnetic Circular Dichroism Studies on High-intensity Bands of d^8 Square-planar Metal Halides ..... H. Katô 1281
The Catalytic Oxidation of Carbon Monoxide on Zirconium Dioxide ..... T. Hamamura, Y. Onishi, and Y. Iizuka 1288
Molecular Structure of Propane ..... T. Iijima 1291
Bromination of Aliphatic Ketones with Copper(II) Bromide in Organic Solvents. I. The Reaction of Acetone with Copper(II) Bromide in Methanol ..... Y. Kojima and S. Kawaguchi 1293
Ionization Energies and Rydberg States of Tetraaminoethylenes ..... Y. Nakato, M. Ozaki, and H. Tsubomura 1299
Radiolyses of Mixtures of Ammonia and Hydrocarbons. II. Formation of Hydrogen from Mixtures of Ammonia and Olefins (Ethylene, Propylene, and Butadiene) ..... K. Hamanoue, J. Okamoto, O. Tokunaga, and A. Danno 1306
The Effects of Pre-irradiation Treatments on the Chemical Behavior of ^{64}Cu Recoil Atoms in Neutron-irradiated Copper Phthalocyanine ..... H. Kudo 1311
Polarographic Investigation of Biopolymers. II. Cu(II)-poly(α,L-Glutamic Acid) in the Helix-Coil Transition Region ..... S. Inoue, K. Yamaoka, and M. Miura 1314
An MO-theoretical Study of the Nucleophilic Bimolecular Ring-opening of Ethylene Oxide ..... H. Fujimoto, M. Katata, S. Yamabe, and K. Fukui 1320
The Amine Sensitization of the Fluorescence of Tris(dibenzoylmethano)europium(III) ..... T. Fukuzawa and N. Ebara 1324
Acidity and Acid Strength of Zeolite Catalysts ..... M. Ikemoto, K. Tsutsumi, and H. Takahashi 1330
A Theoretical Consideration of the Electron-scavenging Process in Liquid Hydrocarbons. III. Integral Transforms of the Distribution Functions ..... H. Yamazaki and K. Shinsaka 1335
Equilibrium of Urea Synthesis. I. ..... S. Inoue, K. Kanai, and E. Otsuka 1339
Infrared Intensities of Sodium, Calcium, and Potassium Hydroxide Crystals ..... T. Kamisuki and S. Maeda 1345

A Study on the Nature of the Electronic Absorption Bands of Formylpyrroles and Acetylpyrroles ..... T. Matsuo and H. Shosenji 1349

The Isomerization of Propylene Oxide on Metal Phosphate Catalysts ..... T. Imanaka, Y. Okamoto, and S. Teranishi 1353

Intermolecular Hydrogen Transfer Reactions in the Excited States of EDA-Complexes of Benzophenone with Aromatic Amines at Low Temperature ..... S. Arimitsu and H. Tsubomura 1357

Polarized Absorption Spectra of Crylstals of Indole and Its Related Compounds ..... Y. Yamamoto and J. Tanaka 1362

The Crystal and Molecular Structure of Bis(L-prolinamidato)nickel(II) Dihydrate ..... T. Tsukihara, Y. Katsube, K. Fujimori, and Y. Ishimura 1367

Thermodynamic Properties of an Aqueous Solution of Tetraethylene Glycol Diethyl Ether ..... H. Nakayama 1371

On the Electron-transfer Reaction Rate between Different Molecular Species of Aromatic Hydrocarbons as Measured by ESR ..... K. Suga and S. Aoyagui 1375

A Dilatometric Study of Compatible Polymer Mixtures ..... S. Akiyama 1381

On the Long-range Interactions between Two Hydrogen Atoms and Two Helium Atoms ..... T. Yamabe, S. Ishimaru, and K. Fukui 1384

Notes:

A Theoretical Account of the Catalytic Behavior of Sulfonium Compounds in Oxidation Reactions ..... K. Ohkubo and H. Kanaeda 1550

An Approach for Calculation of n,π^* State Energies of Some Carbonyl Molecules within the Framework of the Semi-Empirical SCF-MO-CI Method ..... K. Inuzuka and R. S. Becker 1557

The Crystal Structure of *o*-Nitrobenzamide ..... K. Fujimori, T. Tsukihara, Y. Katsube, and J. Yamamoto 1564

A Remark on the Importance of Particular Orbital Interaction in the Dimerization of Methylenes ..... H. Fujimoto, S. Yamabe, and K. Fukui 1566

A Theoreticlal Account of the Correlation between the Electronic Properties of Onium Compounds and Their Catalytic Activities in the Liquid-phase Oxidation of Hydrocarbons ..... K. Ohkubo and H. Kanaeda 1571

An MO Interpretation of the Chemical Shifts of the Binding Energies of Inner-shell Electrons. II. A Study of Intramolecular Shifts ..... K. Ishida, H. Kato, H. Nakatsuji, and T. Yonezawa 1574

The Polarization Measurement of He–Ne Laser Excitation Raman Lines of Liquid Acetone ..... T. Fujiyama and T. Shimanouchi 1575

Analytical and Inorganic

The Behavior of Indium (III) Complexes in Several Distribution Systems. II. The Extraction of Indium (III) Halide and Thiocyanate Complexes into 4-Methyl-2-Pentanone,4-Methyl-2-Pentanol, or Nitrobenzene ..... Y. Hasegawa, H. Takeuchi, and T. Sekine 1388

Fluorometric Determination of Aluminum and Gallium with Superchrome Garnet Y ..... K. Hiraki 1395

The Nitration of Nickel(II)-, and Copper(II)-complexes of Bis(salicylaldehyde)ethylenediimine ..... M. Tmaki, I. Masuda, and K. Shinra 1400

Trace Analysis of Metals by ESR. I. Microdetermination of Copper by Means of Solvent Extraction of Copper(II) Diethyldithiocarbamate ..... D. Yammoto, T. Fukumoto, and N. Ikawa 1403

Trace Analysis of Metals by ESR. II. Indirect Microdetermination of Mercury(II) with Tetraethylthiuram disulfide Copper(II) Complex ..... D. Yamamoto and N. Ikawa 1405

Trace Analysis of Metals by ESR. III. Determination of Silver by Solvent Extraction with Tetraethylthiuram Disulfide Silver(II) Complex ..... D. Yamamoto and F. Ozeki 1408

Nickel(II) Complexes of 1,5-Dialkyl-2,4-pentanediones ..... I. Yoshida, H. Kobayashi, and K. Ueno 1411

Reaction Rates and Mechanisms of the Formation of Gallium(III), Indium(III), and Thallium(III) Complexes with Semi-Xylenol Orange in Aqueous Solutions ..... Y. Kawai, T. Takahashi, K. Hayashi, T. Imamura, H. Nakayama, and M. Fujimoto 1417

Ultraviolet and Infrared Spectra of Cupferron and Neocupferron ..... T. Yoshimura, C. Miyake, and S. Imoto 1424

Spectrophotometric Study on The Extraction of The Ternary Complex Composed of Cobalt(II), 8-Hydroxyquinoline-5-sulfonic Acid and Zephiramine ..... T. Kambara and M. Sugawara 1430

The Reaction and Reaction Products of μ-O_2-Dicobalt Ammine Complexes with Nitrites, Thiocyanates, *etc* ..... T. Shibahara and M. Mori 1433

The Electorchemical Behavior of the Low-valent Transition Metal Complexes. I. Nickel-2,2′-Dipyridyl Complexes ..... A. Misono, Y. Uchida, T. Yamagishi, and H. Kageyama 1438

Stereochemical Studies of Metal Chelates. IX. The Preparation and Stereochemistry of Cobalt(III) Complexes Coordinated with the *meso*-Form of 3,6-Diaza-2,7-dimethyl-1,8-diaminooctane..... M. Saburi and S. Yoshikawa 1443

Organic and Biological

Intramolecular Hydrogen Bonding in α-Keto and α-Alkoxy Carboxylic Acids. VIII. *o*-Methoxy-Substituted Phenoxyacetic and Phenylthioacetic Acids..... M. Hirota and Go Hirano 1448

Photooxidation of 1,4-Dihydropyridines..... O. Mitsunobu, S. Matsumoto, M. Wada, and H. Masuda 1453

Dimerization and Isotopic Mixing of Ethylene by a Palladium Complex Catalyst..... T. Kitamura, K. Maruya, Y. Moro-oka, and A. Ozaki 1457

Synthesis of N^{δ}-Hydroxyornithine..... Y. Isowa, T. Takashima, M. Ohmori, H. Kurita, M. Sato, and K. Mori 1461

Acylation of N^{δ}-Benzyloxyornithine..... Y. Isowa, T. Takashima, M. Ohmori, H. Kurita, M. Sato, and K. Mori 1464

Synthesis of Rhodotorulic Acid..Y. Isowa, T. Takashima, M. Ohmori, H. Kurita, M. Sato, and K. Mori 1467

Preparation and Thermal Decomposition of 1,4,5- and 1,3,5-Trimethyltetrazolium Iodides..... T. Isida, S. Kozima, S. Fujimori, and K. Sisido 1471

Structures of Three Isomeric Dimers of 2,4,5-Triphenylimidazolyl..... H. Tanino, T. Kondo, K. Okada, and T. Goto 1474

The Biosynthesis of Linalool in *Cinnamomum Camphora* Sieb. *var. linalooliferum* Fujita..... T. Suga, T. Shishibori, and M. Bukeo 1480

Chlorination of Olefins with Thallium(III) Chloride Tetrahydrate....S. Uemura, O. Sasaki, and M. Okano 1482

The Base-catalyzed Condensation of *o*-Nitropropiophenone.....T. Sakan, S. Hayashi, and T. Miwa 1485

Hydrogen Transfer Polymerization of Malononitrile.....N. Kawabata, C. K. Chen, and S. Yamashita 1491

Intramolecular Hydrogen Bonding of *ortho*-Substituted Benzenethiols..... T. Kobayashi, A. Yamashita, Y. Furuya, R. Horie, and M. Hirota 1494

Reactions of Aryloxycopper(I) with Organic Halides.....T. Kawaki and H. Hashimoto 1499

The Synthesis and Configuration of Fukiic Acid Derivatives..... T. Matsumoto, K. Hidaka, T. Nakayama, and K. Fukui 1501

Oxidation by Transition Metal Complexes. III. Oxidation of Cinnamaldehyde Catalyzed by Rhodium Compounds.....K. Takao, M. Wayaku, Y. Fujiwara, T. Imanaka, and S. Teranishi 1505

Mercaptoacetate Derivatives. I. Reaction of Thiocyanatoacetic Esters with Aldehydes.....T. Hayashi 1507

Reinvestigation of the Nitration of Ethylmesitylene and *n*-Propylmesitylene. Revision of Early Works..... H. Suzuki, M. Sawaki, and R. Sakimoto 1515

The Substituent Effect. IV. Proton NMR Chemical Shifts of Phenols..... Y. Tsuno, M. Fujio, Y. Takai, and Y. Yukawa 1519

Location of the Sulfate Groups in κ-Carrageenan from *Gigartina Tenella*..... S. Hirase and K. Watanabe 1529

Studies of Acyl and Thioacyl Isocyanates. VIII. Cycloaddition Reactions of Benzoyl and Thiobenzoyl Isocyanates with Carbodiimides.....O. Tsuge and K. Sakai 1534

Notes:

Photocyclization of *o*-Terphenyl-Type Compounds and Reactivity Indices.....T. Sato and T. Morita 1548

Conformations of the Ester. VII. The Conformations of Chloroformates.....M. Ōki and H. Nakanishi 1552

The Reaction of α,β-Unsaturated Aldehydes with 1,3-Dienes in the Presence of Alkylaluminums..... S. Miyajima and T. Inukai 1553

An Attempted Synthesis of 3,6-Epidithio-2,5-piperazinedione by Cyclization of *N,N'*-Dialkyl-2,2'-dithiodicinnamamide.....J. Yoshimura and Y. Sugiyama 1554

Some Reactions of Hydrazino- and Aminophosphonium Bromides.....K. Yamada and N. Inamoto 1559

A Simple Preparation of 2,3-Dimethylene-bicyclo[2.2.1]hept-5-ene.....T. Toda, T. Ohya, and T. Mukai 1561

Hindered Rotation in [12]Paracyclophanes.....M. Nakazaki, K. Yamamoto, and S. Okamoto 1562

The Synthesis of the 3-Substituted 1,4,2-Dithiazine 1,1-Dioxides.....K. Hasegawa and S. Hirooka 1567

The Synthesis of 3,4-Di-*O*-methyl-D-galactose.....S. Hirase and K. Watanabe 1569

The Deacylation of β-Diketones in the Presence of Copper(II)-β-Diketonates in Methanol..... K. Uehara, S. Shionoiri, M. Tanaka, and N. Murata 1570

Reduction of Some 7-Halonorcaranes with Tri-*n*-butyltin Hydride ..... T. Ando, K. Wakabayashi, H. Yamanaka, and W. Funasaka 1576

Applied

Preparation of Reinforcing Fillers from Japanese Acid Clays with Lime and by Calcination. I. Availability of Raw Materials for Preparing Hard Clay and the Properties of Products ..... H. Rai and J. Yamada 1540

Short Communications

Hydrolysis of Adenosine 5′-Triphosphate in the Presence of Various Polyamines ..... S. Suzuki, T. Higashiyama, K. Ueda, and A. Nakahara 1579

Evidence of a π-Allyl Intermediate in the Deuterium Propylene Exchange Reaction over $C_{24}K$ ..... T. Kondo, M. Ichikawa, S. Saito, and K. Tamaru 1580

A Novel Cleavage of Carbon–Carbon Triple Bond ..... H. Fujita, R. Endo, K. Murayama, and T. Ichii 1581

A New Route to Nitriles from Thioamides ..... H. Fujita, R. Endo, and K. Murayama 1582

Preparation and Properties of Methylcopper-triphenylphosphine Complexes ..... A. Yamamoto, A. Miyashita, T. Yamamoto, and S. Ikeda 1583

The Stereospecific Rearrangement of 1,3,5-Cycloheptatriene-7-carboxaldehyde Dimethyl Acetal to *cis*-β-Methoxystyrene ..... H. Tsuruta, K. Tomisawa, and T. Mukai 1584

No. 6

General and Physical

The Determination of the Diffusion Coefficient and the Maximum Surface Cencentration of Polyvinylpyrrolidone by Means of a Hanging Mercury Drop Electrode ..... T. Yoshida, T. Ohsaka, and S. Nomoto 1585

Electronic Structures of Thianthrene, Phenothiazine, and Related Heterocyclic Compounds ..... M. Kamiya 1589

The Infrared Spectra of Addition Compounds of Hydrogen and Deuterium Cyanides with Boron Tribromide ..... I. Kanesaka, Y. Hase, and K. Kawai 1595

An Interstitial-Electron Model for the Structure of Metals and Alloys I. Description of Model for Metallic Binding ..... O. Johnson 1599

An Interstitial-Electron Model for the Structure of Metals and Alloys II. Electronic Structure of Metals of Groups I—V ..... O. Johnson 1607

Convenient Quadratic Formulas for the Tow-center Coulomb Repulsion Integrals in the Semiempirical LCAO-MO Method and the Significance of the Pariser-Parr Approximation ..... Y. Gondo and Y. Kanda 1612

Equilibrium of Urea Synthesis. II ..... S. Inoue, K. Kanai, and E. Otsuka 1616

The Solvent Extraction of Iron(III) in Perchlorate Solutions Containing Chloride or Bromide Ions with 2-Thenoyltrifluoroacetone and Trioctylphosphine Oxide ..... T. Sekine and T. Tetsuka 1620

The Solvent Extraction of Znic(II) in Sodium Perchlorate-halide Solutions with Trioctylphosphine Oxide ..... H. Moriya and T. Sekine 1626

Least-Squares Determination of Molecular Structures from Gaseous Electron-Diffraction Data. II. Polynomial Expression of Background ..... S. Shibata 1631

Elimination Reactions of Ethylene Halohydrins on Solid Catalysts ..... I. Mochida, Y. Anju, A. Kato, and T. Seiyama 1635

Intersystem Crossing Quantum Yields of Phthalazine and Pyridazine ..... T. Takemura, K. Yamamoto, I, Yamazaki, and H. Baba 1639

Liquid-phase Adsorption from Binary Solutions on Silica Gel. The Apparent Separation Factors and the Distribution of Adsorption Sites ..... T. Kagiya, Y. Sumida, and T. Tachi 1643

The Crystal and Molecular Structure of Dimethyltin Bis(*N*,*N*-dimethyldithiocarbamate) ..... T. Kimura, N. Yasuoka, N. Kasai, and M. Kakudo 1649

An ESR Study of Some Substituted Pyridine *N*-Oxide Copper(II) Complexes ..... D. P. Freyberg, T. Isobe, and S. Misumi 1654

Transfer-hydrogenation and Transfer-hydrogenolysis. I. Transfer-hydrogenation of Cyclooctadienes Catalyzed by Dichlorobis (triphenylphosphine)iron (II) ..... T. Nishiguchi and K. Fukuzumi 1656

Spectral Shift of Band Origins in the Near Ultraviolet Absorption Spectra of Some 2- and 3-Substituted Pyridines ..... G. S. Kastha and S. C. Bag 1661

Far Infrared Spectra and the Calculation of Lattice Vibrations of Benzoic Acid ..... S. Meshitsuka, H. Takahashi, K. Higasi, and B. Schrader 1664

The Abnormal Absorption Intensity of the C–H Stretching Vibration Band in Chloroform Vapor. II..... T. Miyazaki and H. Yamamoto 1669

The n-π^* Absorption and Phosphorescence of Terephthalaldehyde ..... Y. Murakami, R. Shimada, and Y. Kanda 1673

Mössbauer Effect of ^{119}Sn in Tetracarbonylcobalt Derivatives of Tin(IV) Halides..... S. Ichiba, M. Katada, and H. Negita 1679

Polarography of Uranyl Complex with p-Aminothiophenoxyacetic Acid in Dimethyl Sulfoxide Solution ..... T.-T. Lai and J.-C. Yang 1683

Fluorescence Emission in the Gas Phase of Several Aromatic Hydrocarbons..... A. Nakajima 1687

Dielectric Dispersion at Meter Waves of 1-Hexanol and 1-Octanol in Cyclohexane Solutions..... H. Komooka 1696

Notes:

Electronic Spectra and Structures of 3-Substituted 1,2-Diphenylcyclopropenyl Cations..... Z. Yoshida and H. Miyahara 1919

Photosensitive Ionomer. IV. Preparation of Mercurous Copoly(vinyl alcohol-methacrylate) and Properties of the Plate..... K. Sugita, M. Hase, and S. Suzuki 1921

An Electrochemical Study of the Photosensitivity of Poly-*N*-vinylcarbazole..... H. Yoneyama, M. Hirai, and H. Tamura 1932

ESR Study of γ-Irradiated Isobutylene-Silica Gel System..... S. Nagai, S. Ohnishi, and I. Nitta 1934

The Temperature Dependence of the Fluorescence and Polarization Spectra of 1-Naphthol..... S. Suzuki, T. Fujii, and K. Sato 1937

Analytical and Inorganic

Mass Spectrometric Analysis of Water-insoluble Yellow Monoazo Pigments ..... K. Kobayashi and K. Hirose 1700

Activation Analysis of Arsenic, Copper, and Antimony in Sea Water ..... S. Gohda 1704

Spectrophotometric Studies and Analytical Applications of Vanadium(IV) Chelates with 4-(2-Pyridylazo)-resorcinol and 1-(2-Pyridylazo)-2-naphthol..... S. P. Mushran, O. Prakash, and J. R. Verma 1709

Electron-transfer Reactions of Multidentate Ligand Cobalt(III) Complexes. IV. The Reductions of Cobalt(III) Complexes of Amino Acids by Iron(II) in Aqueous and Water-methanol Solutions ..... K. Ohashi, K. Yamamoto, I. Hirako, and Y. Kurimura 1712

The Reactions of ^{80}Br Activated by the (n,γ) Process with Methane ..... M. Saeki, K. Numakura, and E. Tachikawa 1715

Crystal Growth of β-Hopeite on (0001) Plane of a Single Crystal of Zinc..... A. Okuwaki, J. Ninagawa, T. Okabe, and K. Omori 1720

The Characterization of Oligomeric Iron(II)-tetraoxime Complexes..J. Backes, I. Masuda, and K. Shinra 1724

The Polarography of *N,N'*-Ethylenebis(acetylacetoniminato) and *N,N'*-Ethylenebis(salicylaldehydeiminato) Complexes of Cobalt(III), Nickel(II), and Copper(II) in an *N,N*-Dimethylformamide Solution ..... M. Kodama, Y. Fujii, and M. Sakurai 1729

Ionic Equilibria in Mixed Solvents. VII. Hydrolysis of Copper(II) Ion in Dioxane-Water Mixtures Containing 3M (Li)ClO_4 as an Ionic Medium..... H. Ohtaki and T. Kawai 1735

Interaction between Organoaluminum Compounds and Ditertiary Phosphines Studied by Proton Magnetic Resonance..... T. Kagawa and H. Hashimoto 1739

The Dissolution of Olivine in Aqueous Solutions of Inorganic Acids ..... I. Sanemasa, M. Yoshida, and T. Ozawa 1741

Distribution Studies of the Potassium Salts with Hexanitrodiphenylamine and Analogous Acids....T. Iwachido 1746

Kinetic Studies of the Nickel Malate Complex Formation in Solution by the Pressure-jump Method ..... S. Harada, K. Amidaiji, and T. Yasunaga 1752

The Crystal Structure of $(-)_{589}$-Dinitrobis(ethylenediamine)cobalt(III) $(+)_{589}$-Bis(malonato)ethylenediaminecobaltate(III)..... K. Matsumoto and H. Kuroya 1755

Binuclear Metal Complexes. III. Preparation and Properties of Mononuclear and Binuclear Copper(II) and Nickel(II) Complexes of New Macrocycles and Their Related Ligands.....H. Okawa and S. Kida 1759

Notes:

Iron Compounds Formed by the Aerial Oxidation of Ferrous Salt Solutions .....M. Kiyama and T. Takada 1923

Kinetic Studies of Copper(II) Chloroacetate Complex Formation Reaction in Aqueous Solutions ..... S. Harada, Y. Tsuji, and T. Yasunaga 1930

The Syntheses and Properties of Chloro(acrylonitrile) Complexes of Platinum(0) ..K. Suzuki and H. Okuda 1938

Organic and Biological

Studies on Stable Free Radicals. IX. Peroxy Acid Oxidation of Hindered Secondary Amines to Nitroxide Radicals.....T. Toda, E. Mori, and K. Murayama 1904

Studies on Stable Free Radicals. X. Photolysis of Hindered *N*-Chloroamines..... T. Toda, E. Mori, H. Horiuchi, and K. Murayama 1802

Studies on Stable Free Radicals. XI. ESR Spectra of Stable Nitroxide Biradicals ..... T. Toda, E. Mori, and K. Murayama 1764

Studies on Stable Free Radicals. XII. ESR Spectra of 2-*t*-Butylaminotropone *N*-Oxyl Radicals..... T. Toda, E. Mori, and K. Murayama 1852

Studies on Stable Free Radicals. XIII. Synthesis and ESR Spectral Properties of Hindered Piperazine *N*-Oxyls ..... T. Yoshioka, E. Mori, and K. Murayama 1855

Effect of Ring Size on the Mass Spectral Fragmentation of Cyclic Sulfoxides.....S. Tamagaki and S. Oae 1767

Liquid Crystalline Properties of Terminally Substituted Benzylideneanilines.....K. Murase 1772

Sturcture and Reactivity of Small Ring Compounds. IV. Photochemistry of Spirocyclopropyl Ketones..... .....A. Sonoda, I. Moritani, J. Miki, T. Tsuji, and S. Nishida 1777

Studies on the Voges-Proskauer Reaction. II. The Structure of a Pigment from the Diacetyl Reaction of 1-Benzyl-1-methylguanidine..... T. Nishimura, C. Yamazaki, T. Ueno, S. Kitajima, and K. Ishige 1782

Intramolecular Hydrogen Bonds. XVIII. Intramolecular Hydrogen Bonding in Ethyl α- and β-Alkylamino-alkanoates..... N. Mori, M. Aihara, Y. Asabe, and Y. Tsuzuki 1786

Studies on Separation of Amino Acids and Related Compounds. VII. Separation of L-Aspartyl-(α,β)-L-histidine and of L-Glutamyl-(α,γ)-L-histidine..... M. Hirata, K. Noda, and N. Izumiya 1790

Chemical Constituents of *Alnus sieboldiana* (BETULACEAE). III. The Synthesis and Stereochemistry of Yashabushiketols..... Y. Asakawa 1794

Imidothiocarbonates. V. Preparations and Properties of Novel Azomethine Ylides and Thiocarbonyl Ylides from Sulfur-contained Heterocycles..... Y. Ueno and M. Okawara 1797

On the Configuration of Branched-Chain Derivatives of 1,2:5,6-Di-*O*-isopropylidene-α-D-*ribo*-hexofuranos-3-ulose ..... J. Yoshimura, K. Kobayashi, K. Sato, and M. Funabashi 1806

The Reduction of Stereoisomeric 6-*tert*-Butyl-3-methoxy-3-methylcyclohexenes with Lithium in Ethylamine.... ..... T. Masamune, H. Matsue, and M. Fujii 1812

Methylene Analogs of Cyclobutenedione. III. The Reaction of 2-Bromo- and 2,2-Dibromo-3,4-bis(diphenylmethylene)cyclobutanone with Alcoholic Potassium Hydroxide.....F. Toda and Y. Takehira 1816

Methylene Analogs of Cyclobutenedione. IV. The Reaction of 3,4-Bis(diphenylmethylene)cyclobutanedione Monoacetal and Its Derivatives with Methanolic Potassium Hydroxide.....F. Toda and N. Ooi 1820

Layered Compouds. V. Synthesis and Properties of [*m.n*]Paracyclophadiynes ..... T. Matsuoka, T. Negi, T. Otsubo, Y. Sakata, and S. Misumi 1825

Isolation and Structure Proof of Dinitrocyclohexenones Formed in the Nitration of Polyalkylbenzenes with Fuming Nitric Acid .....H. Suzuki, M. Sawaki, and R. Sakimoto 1834

The Photo-Beckmann Rearrangement of 3α,5-Cyclo-5α-cholestan-6-one Oxime ..... H. Suginome, H. Takahashi, and T. Masamune 1836

The Structure of ε-Carrageenan from *Gigartina Tenella*.....S. Hirase and K. Watanabe 1839

The Synthesis of 3,6-Anhydro-5-*O*-methyl-D-galactose.....S. Hirase and K. Watanabe 1844

Propiolamidines. I. Syntheses of *N,N'*-Disubstituted Phenylpropiolamidines and New Routes to 5-*N*-Substituted Amino-3-phenylisoxazoles and 5-*N*-Substituted Amino-1,3-diphenylpyrazoles..... .....H. Fujita, R. Endo, A. Aoyama, and T. Ichii 1846

Steric Effect in the Nucleophilic Attack of Bromide Anion on Diarl- and Aryl-2-thienyliodonium Ions ..... Y. Yamada and M. Okawara 1860

The Photolysis and Thermolysis of Ethyl Azidoformate in the Presence of Ketones ..... T. Hiyama. H. Taguchi, S. Fujita, and H. Nozaki 1863

Chemistry of Nitrosoimines. II. Photolysis of 2-Nitrosoimino-2,3-dihydrothiazoles ..... K. Akiba, I. Fukawa, N. Nomura, and N. Inamoto 1867

The Oxidation of (+)-3-Carene and the Related Compounds with *t*-Butyl Chromate ..... T. Suga, T. Shishibori, and T. Matsuura 1873

Mass-spectral Fragmentation of 3-(5-Nitro-2-furyl)-1,2,4-triazoles ..... Y. Kato and I. Hirao 1876

The 1-Methylene Derivatives of [7](2,6)Pyridinophanes. Preparative and Conformational Studies ..... S. Fujita, K. Imamura, and H. Nozaki 1881

Synthetic Reactions by Complex Catalysts. XXVI. The Copper-catalyzed Reaction of α,β-Unsaturated Isocyanide with Active Methylene Compounds ..... T. Saegusa, I. Murase, and Y. Ito 1884

The Synthesis of an Etiojervane Analog of Corticosterone ..... T. Masamune and T. Orito 1888

The Synthesis of the 1,2,4-Thiadiazine-1,1-dioxides ..... K. Hasegawa and S. Hirooka 1893

Automatic Problem Solving Applied to Synthetic Chemistry ..... M. Bersohn 1897

Notes:

The Allylic Oxidation of Thujopsene ..... M. Ito, K. Abe, and H. Takeshita 1913

The Autocatalytic Oxidation of Thujopsene. A Facile Synthesis of Mayurone ..... M. Ito, T. Nishimura, and K. Abe 1914

Reaction of Urea with Ethylene in the Presence of Oxygen and a Nitrile–Sodium Tetrachloropalladate–Cupric Chloride Catalyst System ..... T. Inoue, H. Harada, and S. Miyajima 1915

The Synthetic Intermediate of Pyridoxide. III. The Simple Synthesis of Ethyl *N*-Ethoxalylalaninate and Ethyl *N*-Formylalaninate ..... I. Maeda, S. Asai. H. Miyayashiki, and R. Yoshida 1917

Synthesis of (4-Pyridyl)-1,2-ethanediol and α-Acetoxy-4-vinylpyridine ..... T. Furuyama, K. Mori, and S. Wakasa 1924

Catalytic Hydrogenolysis of 7-Chloro-7-fluorobicyclo[4.1.0]-heptane in the Presence of Ethylenediamine ..... H. Kano, K. Kobayashi, and K. Isogai 1926

Methylene Analogs of Cyclobutendione. V. The Reactions of 3,4-Bis(diphenylmethylene)cyclobutanedione with Water, Alcohol, and Amine in the Presence of Bromine. The Approach to a Bisketene ..... F. Toda and J. Fujita 1928

6β-Acetoxyfuranoeremophilan-3α-yl Angelate and 6β-Hydroxyfuranoeremophilan-3α-yl Angelate. New Furanoeremophilane Derivatives from *Farfugium hibernifiorum* Kitamura ..... H. Nagano and T. Takahashi 1935

Applied

The Preparation and General Properties of Ion-exchange Carbon Fiber ..... S. Otani, M. Tamura, Y. Yoshida, and Y. Tsuji 1908

Short Communications

Crystal Structures of 1-(2-Thiazolylazo)-6-bromo-2-naphthol and Bis(1-(2-thiazolylazo)-2-naphthol)iron(II) ..... M. Kurahashi, A. Kawase, K. Hirotsu, M. Fukuyo, and A. Shimada 1940

The Complex of Poly-α,L-glutamic Acid with Acridine Orange in the Neutral and Alkaline pH Region ..... Y. Sato, M. Yoneyama, and M. Hatano 1941

The Flexibility of the Tribenzylamine Molecule in Both Solution and the Solid State as Revealed by NMR Measurements ..... A. Aihara and M. Yokoi 1942

A Cation-dependent Conformational Change of the 2,2′:6′,2″-Terpyridine Anion Radical ..... K. Nakamura 1943

Promoting Effect of Zirconium Compound on Catalytic Activity for Oxychlorination of Butadiene ..... H. Hagiwara and N. Todo 1944

3*H*-2,1-Benzoxathiole-1,1-dioxide, and Unusual By-Product from the Jacobsen Reaction ..... H. Suzuki and K. Kawamura 1945

A Free Radical Mechanism for the Formation of Zinc-Carbenoid Reagent from Diethylzinc and Chloroiodomethane ..... S. Miyano, J. Yamashita, and H. Hashimoto 1946

No. 7

General and Physical

Dimerization and Electronic Absorption Spectra of Tetracyanoethylene Anion in Solution and in Solid..M. Itoh 1947

Photo-decoloration Process of the Reverse Photochromic Spirans.....E. Inoue, H. Kokado, I. Shimizu, H. Kobayashi, and Y. Takahashi 1951

Mechanism of Hydrogen Exchange Reactions on 1:2 Electron Donor-Acceptor Complexes of Anthracene with Sodium....M. Ichikawa, S. Tanaka, S. Naito, T. Nakamura, M. Soma, T. Onishi, and K. Tamaru 1956

Calorimetric Study of the Glassy State. VII. Phase Changes between the Crystalline Phases of Cycloheptanol with Various Degrees of Stability.....K. Adachi, H. Suga, and S. Seki 1960

Exciton-Exciton Interaction and Exciton Migration in Anthracene, Pyrene, and Perylene Crystals.....A. Inoue, K. Yoshihara, and S. Nagakura 1973

An Electron Spin Resonance Study of the Tropone Anion Radical..Y. Ikegami, H. Watanabe, and S. Seto 1976

Electronic Absorption Spectra and Geometry of Molecule Ions Generated from Stilbene and Related Compounds. I. Dianions.....H. Suzuki, K. Koyano, and T. L. Kunii 1979

A Negative Ion-molecule Reaction in Nitroethylene..T. Shiga, H. Yamaoka, K. Arakawa, and T. Sugiura 2065

The Solid Complex of Aminomalonic Acid with β-Alanine and Its Thermal Decomposition.....J. Nishijo, I. Imanishi, and G. Hashizume 2070

The Diffusion of Gases at High Pressures. IV. The Diffusion of CTH_3 in the CH_4–CO_2 System..S. Takahashi 2074

Catalytic Properties of BF_3-treated Aluminas. IV. The Effect of BF_3 Adsorption on the Acidic Properties of Aluminum Oxides.....K. Matsuura, A. Suzuki, and M. Itoh 2079

Ultrasonic Absorption in Solutions of Propionic Acid.....N. Tatsumoto, T. Sano, N. Matsunaga, E. Tochigi, and T. Yasunaga 2083

Ion-Solvent Interaction of Tetraalkylammonium Ions in Solvents of High Dielectric Constant. II. Conductance and Walden Product of Tetraalkylammonium Ions in *N*-Methylformamide and *N*-Methylpropionamide at Different Temperatures.....R. D. Singh and R. Gopal 2088

The Crystal and Molecular Structure of Averufin.....Y. Katsube, T. Tsukihara, N. Tanaka, K. Ando, T. Hamasaki, and Y. Hatsuda 2091

The Electrical Properties of Iodine Complexes of *N*-Methyl- and *N*-Ethyl-phenothiazines and Their Mixtures..K. Kan and Y. Matsunaga 2096

Light-scattering Studies of the Interaction between Bovine Serum Albumin and Guanidine Hydrochloride in Aqueous Solutions.....M. Nakagaki and Y. Sano 2100

An Isothermal Displacement Calorimeter for Measuring Enthalpies of Mixing.....R. Tanaka, S. Murakami, and R. Fujishiro 2107

Notes:

CNDO/2 Calculations of Hydrogen Bonding; Phenol- and *p*-Nitrophenol–Ammonia Systems.....A. Matsuyama and A. Imamura 2196

Charge-Transfer Absorption in the Solid Aromatic Diamine Complexes with Picrates.....G. Saito and Y. Matsunaga 2214

Chlorine-35 NQR of Hexachlorodisilazane and the Si–Cl Bond of $SiCl_3$-Groups.....K. Hamada and E. A. Robinson 2219

Infrared Intensities of Crystalline NH_3 and ND_3.....M. Uyemura and S. Maeda 2225

A Chlorine NQR of *anti*-Perchloro-(3,4,7,8-tetramethylenetricyclo[4.2.0.0^{2,5}]octane), $C_{12}Cl_{12}$.....M. Hashimoto, K. Sagisawa, and K. Mano 2228

Transition Metal Ions on Molecular Sieves. I. Complexes of Copper(II) on Y Molecular Sieves and Their Catalytic Activities.....I. Mochida, A. Kato, and T. Seiyama 2230

The Nature of Acid Sites on the Surface of Silica-alumina. III. The Mechanism of the Photo-ionization of Perylene and Anthracene Adsorbed on the Surface of Silica-alumina.....K. Takimoto and M. Miura 2231

Electron Spin Resonance of Manganese Ions on Magnesium Oxide.....A. J. Tench 2236

Remarks on the Crystallization and Dehydration of Copper Sulfate Pentahydrate.....K. Heinzinger and B. Maiwald 2237

Fractionation of Oxygen and Carbon Isotopes during Floatation of Calcite.....T. Sharma, A. K. Biswas, and N. V. Pillai 2239

Analytical and Inorganic

The Reaction of Mono-, Di, and Trisodium Orthophosphate in a Mixed Solution of Acetic Acid and Acetic Anhydride ..... M. Watanabe and T. Senda 2111

The Syntheses of 3-(Carboxyalkyl)salicylaldehyde Derivatives and Their Copper Chelates ..... T. Tanaka 2113

Kinetics of the Acid Hydrolysis of Carboxylatopentammineruthenium(III) Complexes ..... A. Ohyoshi, A. Jyo, and N. Shin 2121

Study of Hydration and Association of Ions in Solution. II. Complete Resolution of Tris(ethylenediamine) Cobalt(III), Chromium(III), and Rhodium(III) Complexes by Means of Paper Electrophoresis ..... H. Yoneda and T. Miura 2126

Metal Complexes Containing Six-Membered Chelate Rings. II. Preparation and Structure of 2,4-Pentanediamine Complexes of Cobalt(III) ..... F. Mizukami, H. Ito, J. Fujita, and K. Saito 2129

Synthesis and Properties of Metal Complexes with a New Multidentate Schiff Base Containing Ethereal Oxygen Atoms ..... I. Murase, K. Yamanouchi, and S. Yamada 2138

Six-coordinate Chromium(III) Complexes with *N,N'*-Ethylenebis(acetylacetoneiminate) as a Ligand ..... K. Yamanouchi, and S. Yamada 2140

Syntheses of Formato-, Acetato-, Benzoato-, and Chlorosubstituted Acetatoruthenium Complexes, and Their Properties ..... M. Mukaida, T. Nomura, and T. Ishimori 2143

Cobalt(I) Tetraphenylporphin ..... H. Kobayashi, T. Hara, and Y. Kaizu 2148

Electronic Absorption Spectra of Tris(2,2'-bipyridine)- and Tris(1,10-phenanthroline) Complexes of Vanadium-(II) and Chromium(II) ..... I. Fujita, T. Yazaki, Y. Torii, and H. Kobayashi 2156

Platinum(II)-Olefin Complexes Containing Amino Acids. III. Optical Inversion and Substitution of Coordinated Olefins in Optically Active *trans*(*N*)-Chloro-L-prolinato-olefin-platinum(II) Complexes in Organic Solvents ..... K. Konya, J. Fujita, H. Kido, and K. Saito 2161

Thermal Decomposition Reactions of Metal Oxalato Complexes in the Solid State. I. Thermographic Studies of Metal Oxalato Complexes ..... K. Nagase 2166

Polarographic Study of the Rates of the Dissociation Reactions of the Nickel(II)-, Zinc(II)-, and Cadmium(II)-2,2'-Ethylenedioxybis[ethyliminodi(acetate)] (GEDTA) Complexes ..... M. Kodama and N. Oyama 2169

Studies of Ethylenediamine-*N,N'*-diacetatocobalt(III) Complexes. III. The Preparation and Identification of Ethylenediamine-*N,N'*-diacetatocobalt(III) Complexes with Ammonia, Pyridine, or Alkylamines as the Additional Ligand ..... K. Kuroda 2176

ESR of Hot Ions: Zn(I), Cd(I), and Hg(I) in γ-Irradiated Potassium Tetracyano Zincate(II), Cadmate(II), and Mercurate(II) ..... J. Isoya and S. Fujiwara 2182

ESR Studies of the Copper(II) Complexes of Amino Acids ..... H. Yokoi, M. Sai, T. Isobe, and S. Ohsawa 2189

Notes:

Préparations des Sels de Diiodobis(éthylènediamine)cobalt(III) ..... M. Nakahara and M. Mitsuya 2209

Effect of Acetic Acid on the Polarographic Behavior of Copper(II) Acetate in Acetonitrile ..... E. Itabashi 2226

On Inhibition of Polarographic Reduction of the Dioxalatocuprate(II) Ion by the One-Electron Reduction Product of Phenylmercury Hydroxide ..... T. Murayama and A. Takayanagi 2233

Origanic and Biological

The Effect of the Wavelength of an Exciting Light on Four-center-type Photopolymerization in the Crystalline State ..... T. Tamaki, Y. Suzuki, and M. Hasegawa 1988

Conformations of the Esters. VI. The Conformations of Monothiocarbonates ..... M. Ōki and H. Nakanishi 1993

Ligand Effects in the Cooligomerization of Butadiene and Ethylene by a Nickel-based Catalyst System ..... Y. Inoue, T. Kagawa, Y. Uchida, and H. Hashimoto 1996

Generation and Cycloaddition of 8,8-Dimethylisobenzofulvene ..... H. Tanida, T. Irie, and K. Tori 1999

Oxidation by Transition Metal Complexes. V. Oxidation of Vinyl Esters Catalyzed by Rhodium Complex ..... K. Takao, H. Azuma, Y. Fujiwara, T. Imanaka, and S. Teranishi 2003

The Additive Effect of Triphenylphosphine on the Polymerization of Vinyl Monomers by Copper(II) Chelates ..... T. Shono, Y. Yamashoji, and K. Shinra 2007

The Reaction Mechanism of 2-Dimethoxymethyl-3-methoxypropionitrile with Acetamidine. II. A Novel Reaction Pathway ..... T. Nishino, M. Kiyokawa, Y. Miichi, and K. Tokuyama 2010

The Reaction of Aspartyl Dipeptide Esters with Ketones ..... Y. Ariyoshi and N. Sato 2015

The Reaction of Sulfilimine with Phenyl Grignard Reagent ..... S. Oae, T. Yoshimura, and N. Furukawa 2019

Reaction of α-Chloro Sulfoxides with Carbonyl and Thiocarbonyl Compounds ..... G. Tsuchihashi and K. Ogura 2023

Aminosugars. XX. Synthesis of Some Derivatives of 2-Acetamido-2-deoxy-D-mannose ..... J. Yoshimura, H. Sakai, N. Oda, and H. Hashimoto 2027

Kinetic Study on Homolysis of Aryl Arylazo Sulfones ..... M. Kojima, H. Minato, and M. Kobayashi 2032

Aroyl Arenesulfonyl Peroxides. V. Mechanisms of the Reactions of Benzoyl *p*-Toluenesulfonyl Peroxide with Several Nucleophiles ..... R. Hisada, M. Kobayashi, and H. Minato 2035

Photolysis of Phenylazo *p*-Tolyl Sulfones ..... M. Kobayashi, S. Fujii, and H. Minato 2039

Aromatic Arylation with Aryl Radicals. IV. The Kinetic Hydrogen Isotope Effect in the Aromatic Phenylation with Phenyl Radical ..... N. Kamigata, H. Minato, and M. Kobayashi 2042

Cationic Arylation. V. Reaction of Substituted Benzenes with *p*-Nitrophenyl Cation ..... N. Kamigata, M. Kobayashi, and H. Minato 2047

The Migratory Aptitudes in the 1,3-Dipolar Cycloadducts of Substituted 1-Benzoyliminopyridinium Ylides with Dimethyl Acetylenedicarboxylate ..... T. Sasaki, K. Kanematsu, A. Kakehi, and G. Ito 2050

Reactive Species Produced by Laser Irradiation. The Reaction of CN Radicals with Hydrocarbons ..... K. Taki, P. H. Kim, and S. Namba 2052

Studies of the Synthesis of Furan Compounds. XXVII. Derivatives of 3-(5-Nitro-2-furyl)acrylonitrile ..... I. Hirao and Y. Kato 2055

Chemical Constituents of the Male Flower of *Alnus pendula* (BETULACEAE) ..... T. Suga, N. Iwata, and Y. Asakawa 2058

Stereochemical Studies of Monoterpene Compounds. XVIII. A Conformational Study of Monoterpene α,β-Unsaturated Ketones by Means of the Temperature-dependent Circular Dichroism ..... T. Suga and K. Imamura 2060

Notes:

The Structure of a New Pteridine Compound Produced by *Pseudomonas ovalis* ..... A. Suzuki, T. Miyagawa, and M. Goto 2198

A NMR Study of the Thioacetic Acid-Acetone Mixture ..... T. Horii, S. Kawamura, and J. Tsurugi 2200

Synthetic Studies of the Flavone Derivatives. XXIV. The Synthesis of 5-Hydroxy-7,8,3′,4′-tetramethoxyflavone, A Pigment from Bergamott Oil ..... M. Nakayama, S. Hayashi, K. Fukui, T. Horie, and M. Masumura 2202

A Convenient Synthesis of Methyl Methylthiomethyl Sulfoxide ..... K. Ogura and G. Tsuchihashi 2203

The ESR Spectrum of 2-Dimethylaminoazulene Anion Radical ..... Y. Ikegami, H. Watanabe, and S. Seto 2205

A Fluorescence Study of a Random Coil-to-α-Helix Transition of a 1-Dimethylaminonaphthalene-5-sulfonyl Poly-L-lysine Conjugate ..... T. Iio, Y. Iwashita, and H. Watanabe 2206

The Convenient Preparation of L-Aspartic Anhydride Hydrochloride and Hydrobromide ..... Y. Ariyoshi, T. Yamatani, N. Uchiyama, and N. Sato 2208

The Prins Reaction of Styrene in the Presence of Cation-exchange Resin ..... Y. Kurusu 2211

Synthesis of Dimethyl 4-(Alkyliminomethyl)-4-methylheptanedioates ..... K. Takahashi, A. Miyake, and G. Hata 2212

On the Catalytic Addition of Alcohols to 1,3-Butadiene with Rhodium Trichloride Hydrates ..... H. Kawazura and T. Ohmori 2213

The Formation of Benzoyl Chlorides from 1,2-Dibenzoylhydrazines or Dibenzoyldiimides ..... T. Imamoto 2216

Halogen Migration of 2,2-Dihaloadamantane Induced by Aluminum Halides ..... K. H. Yang, K. Kimoto, and M. Kawanisi 2217

Reactions of Thiobenzophenones with Benzenediazonium-*o*-carboxylate, and Salicyloyl and *o*-Mercaptobenzoyl Chlorides as 1,4-Dipolar Reagents ..... H. Tokunaga, T. Kawashima, and N. Inamoto 2220

The Reactions of 4-Aminothiazolium Salts with Amines ..... A. Chinone, N. Maruyama, and M. Ohta 2222

Kinetics of the Autoxidation of Dialkyl Phenylphosphonites ..... Y. Ogata, M. Yamashita, and T. Ukai 2223

Preparation of Orthoesters Having Functional Group ..... J. Azizian 2235

Nouvelle Synthèse Totale de la Cétone Sabinique(*dl*) ..... C. Alexandre and F. Rouessac 2241

Short Communications

Studies on Chrysanthemate Derivatives. II. Pyrolysis of Pyrethrin-I ..... Y. Nakada, Y. Yura, and K. Murayama 2243

The Reaction of Trialkylboron and α-Lithiobenzyl-2-pyridyl or Phenylsulfide. A Convenient Method for the Preparation of Alkylbenzenes ..... T. Mukaiyama, S. Yamamoto, and M. Shiono 2244

No. 8

General and Physical

The Bromine Nuclear Quadrupole Resonance of the Molecular Complex of Aluminum Tribromide with Benzene ..... T. Okuda, Y. Furukawa, and H. Negita 2245

The Photo-induced Electron Transfer Reactions between Crystals of Aromatic Hydrocarbons and Quinones ..... M. Soma 2247

Ternary Lamellar Compounds of Graphite with Aluminum Bromide and Bromine ..... T. Sasa, Y. Takahashi, and T. Mukaibo 2250

Dimerization of Ethylene Catalyzed by σ-Aryl Nickel Compound in the Presence of Trifluoro Boron Etherate ..... K. Maruya, T. Mizoroki, and A. Ozaki 2255

Magnetic Susceptibilities and Broad-Line PMR Spectra of Dichloro(pyridazine)copper(II) and Related Compounds ..... S. Emori, M. Inoue, and M. Kubo 2259

The Second CMC of the Aqueous Solution of Sodium Dodecyl Sulfate. II. ..... M. Kodama and M. Miura 2265

The Quenching of $Hg(6^3P_1)$ Atoms by Molecular Hydrogen as Investigated by ESR Spectroscopy ..... J. B. Farmer and K. Shimokoshi 2269

The Crystal and Molecular Structure of Butein Monohydrate, Isolated from *Dahlia variabilis* ..... N. Saito, K. Ueno, and Y. Sasada 2274

On the Emission Spectra of the Unimolecular Reaction of Methylamine by Electron Impact ..... K. Fukui, I. Fujita, and K. Kuwata 2278

The Normal Magneto-Optical Rotatory Dispersion and the Magnetic Moment of Benzene ..... Y. Takenoshita 2281

The Vibrational Spectra of Water of Crystallization in Barium Chlorate Monohydrate, Calcium Sulfate Dihydrate and Copper Chloride Dihydrate Crystals ..... K. Fukushima and T. Yanagida 2285

The Molecular and Crystal Structures of Two Isomeric Dihydrofukinolidol Sulfites, $C_{15}H_{22}O_5S$ ..... A. Furusaki and T. Watanabe 2288

Vapor Pressure of a Mixed System of Asphaltene and Organic Solvent ..... S. Sakanoue and M. Endo 2299

Kinetic Study of the Formation and Decomposition of Amylose-iodine-iodide Complex ..... A. Yamagishi, T. Imamura, and M. Fujimoto 2304

Energy Transfer in the γ-Irradiated Benzene Solutions of Carbonyl Sulfide, Nitrous Oxide, and Carbon Dioxide ..... S. Sato, K. Hosoya, S. Shishido, and S. Hirokami 2308

The Orientation Overgrowth of Polycyclic Quinones on the Cleavage Surface of Alkali Halide Single Crystals ..... M. Ashida, A. Hamada, and T. Watanabe 2312

The Dehalogenation of Haloalkanes on SiO_2-supported Metals ..... Y. Anju, I. Mochida, H. Yamamoto, A. Kato, and T. Seiyama 2319

Origin of the Fine Structure of the Electronic Spectra of Pyrazine in Benzene Crystals ..... I. Suzuka and M. Ito 2323

On the Equivalence of Two Expressions for Potentiometric Titration of Polyelectrolytes ..... H. Maeda 2326

Studies on Microcapsules. XIII. Effect of Span 85 and pH of Aqueous Phase on the Formation of Polyamide Microcapsules ..... T. Ogawa, K. Takamura, K. Koishi, and T. Kondo 2329

The Formation of Metallic Silver in Silver-Form Zeolites ..... K. Tsutsumi and H. Takahashi 2332

The Formation of High-Boiling By-products in the Isomerization and Disproportionation of *m*-Xylene over a Silica-alumina Catalyst under Pressure ..... H. Takaya, N. Todo, T. Hosoya, H. Oshio, and T. Minegishi 2337

The Surface Properties of Rutile Prepared by the Hydrolysis of Titanium Tetrachloride. I. The Heat of Immersion in Water ..... T. Iwai, M. Komuro, and M. Miura 2343

Behavior of Positive Hole in a γ-Irradiated 3-Methylpentane Glass at 77°K ..... M. Irie, H. Yoshida, K. Hayashi, and S. Okamura 2347

The Structural Transformation of Ferric Oxyhydroxides and Their Activity to Sulfur Dioxide ..... T. Ishikawa and K. Inouye 2350

Calculation of the Reduced Partition Function Ratios of α-, β-Quartzs and Calcite ..... Y. Shiro and H. Sakai 2355

Steady-Light Irradiation and Flash Photolysis Studies of [2,2]Metacyclophane–Iodine Systems. Mechanistic Implications of Transannular Dehydrogenation Reaction ..... S. Hayashi and T. Sato 2360

Studies of Built-up Films by Means of the Polarized Infrared ATR Spectrum. III. Elaidic Acid Films ..... T. Takenaka and K. Nogami 2367

Vibrational Spectra of Propionamide and Its C- and N-Deuterated Compounds ..... Y. Kuroda, Y. Saito, K. Machida, and T. Uno 2371

On the Mechanism of H Atom Formation by Reaction of Electrons in Frozen Acidic Solutions at 77°K ..... S. Ohno, T. Sasaki, and M. Koike 2383

The Primary Photochemical Process of 4-Nitropyridine *N*-Oxide. II. Decay Kinetics of the Photochemical Intermediates ..... N. Hata, I. Ono, and T. Tsuchiya 2386

Studies of the Properties of the Basic Sites on the Silica-alumina Surface through the Reaction of the Basic Sites with Copper(II) Complexes Containing 2,2′-Bipyridine ..... K. Takimoto 2391

Calorimetric and Magnetic Studies of Crystalline and Glassy Bis[*N*-(3-methoxysalicylidene)isopropylamine]-nickel(II) ..... N. Arai, M. Sorai, and S. Seki 2398

The Crystal Stucture of μ-Oxo-{bispentamminechromium(III)} Chloride Monohydrate, $[(NH_3)_5Cr\text{-}O\text{-}Cr(NH_3)_5]Cl_4\cdot H_2O$ ..... A. Urushizama 2406

Vibrational Spectra of *trans-trans* Diacetamide and Its C- and N-Deuterated Compounds ..... Y. Kuroda, Y. Saito, K. Machida, and T. Uno 2413
A Molecular Orbital Calculation of Chemically Interacting Systems. Addition of Singlet Methylene to Ethylene..... H. Fujimoto, S. Yamabe, and K. Fukui 2424
Dipole Moment Functions of CO and HCl ..... I. Suzuki 2429
Photochemical Reactions of *p*-Benzoquinone Complexes with Aromatic Molecules ..... S. Arimitsu and H. Tsubomura 2433
Self-Diffusion Coefficients and Interdiffusion Coefficient in Acetone-Benzene System ..... Y. Kamei and Y. Oishi 2437
Temperature Dependence of Corona-charging Properties on TiO_2-Polymer Dispersion Layers ..... T. Iida, T. Nonaka, and H. Nozaki 2439
Photochemical Reaction of 9-Chloroacridine in Aerated and Deaerated Ethanol. II. Studies by Means of a Flash Technique..... K. Nakamaru, S. Niizuma, and M. Koizumi 2445

Notes:

Application of Factor Analysis to Polarography ..... D. G. Howery 2643
An MO-Theoretical Account of the Catalytic Decomposition of Alkyl Hydroperoxides by Transition-metal Ions..... K. Ohkubo and H. Kanaeda 2646
Theoretical Consideration on the Electronic Structures of *trans*- and *cis*-Isomers of Acrolein and 2,4-Pentadienal ..... K. Inuzuka 2649
The Crystal and Molecular Structure of *p*-Bromobenzoic Acid....K. Ohkura, S. Kashino, and M. Haisa 2651
Polarized Adsorption Spectrum of Acridone..... H. Inoue, T. Hoshi, and J. Yoshino 2653
Spectrophotometric Studies of the Reaction of 2,2′,4,4′-Tetranitrodiphenylmethane with Bases in Various Solvents ..... H. Inoue, and T. Sakurai 2655

Analytical and Inorganic

Flourinated Ligands. I. Chelating Behavior of 1-Amino-3,3,3-trifluoro-2-propanol with Copper(II) Ion and Preparation of Copper(II)-, Cobalt(III)- and Nickel(II) Complexes....I. Yoshida and H. Kobayashi 2448
Schiff Bases Derived from Heptane-2,4,6-trione and Ethylenediamine, and Its Copper(II) and Oxovanadium(IV) Chelates .....T. Yano, T. Ushijima, M. Sasaki, H. Kobayashi, and K. Ueno 2452
Polarographic Behavior of Nickel(II) in Propionitrile and Benzonitrile in the Presence of Thiocyanate Ions ..... E. Itabashi 2455
An NMR Study of Metal Complexes Containing Acetylacetone and Related Compounds. III. The Preparation and Determination of the Configurations of Cobalt(III) Complexes Containing *N,N′*-Ethylenebis(acetylacetonimine) and *N,N′*-Ethylenebis(salicylideneimine)..... Y. Fujii, A. Osawa, Y. Furukawa, F. Ebina, and S. Takahashi 2459
Mixed Solvent Deuterium Isotope Effects on the Hydrolysis of UO_2^{2+} and Be^{2+} Ions ..... M. Maeda, T. Amaya, H. Ohtaki, and H. Kakihana 2464
Some Metal Complexes Containg Ethylacetoacetone or Ethylmalonate as a Neutral Ligand ..... H. Morita, Y. Nakamura, and S. Kawaguchi 2468
Isotopic Exchange Kinetics between Trisacetylacetonatocobalt(III) and Acetylacetone-^{14}C in Organic Solvents ..... K. Saito and M. Murakami 2472
Synthesis of Tengerite Type Rare Earth Carbonates ..... H. Wakita and K. Nagashima 2476
Binuclear Metal Complexes. IV. The Preparation and Properties of Binuclear Copper(II) Complexes of Schiff Bases Derived from 2,6-Diformyl-4-methylphenol and Glycine or Alanine..... H. Okawa, S. Kida, Y. Muto, and T. Tokii 2480
Magnetic Circular Dichroism of Nickel(II) and Copper(II) Complexes with 1,4,8,11-Tetraazacyclotetradecane Derivatives..... H. Kobayashi and B. Korybut-Daszkiewicz 2485
Preparation and Circular Dichroism Spectra of Bis(aminoacidato)ethylenediaminecobalt(III) Complexes .... N. Matsuoka, J. Hidaka, and Y. Shimura 2491
Studies on New Derivatives of 8-Quinolinol as Chelating Agents. II. Chelate Formation of Some Aminomethyl Drivatives Derived from 8-Hydroxyquinoline-2-carbaldehyde with Metal Ions ..... T. Hata and T. Uno 2497

Note:

Electrical Resistivity of Ternary Compounds, Graphite-Aluminum Bromide-Bromine ..... T. Sasa, Y. Takahashi, and T. Mukaibo 2657

Organic and Biological

Spectra and *Keto-Enol* Eqnilibrium of Benzoylacetanilides..... A. S. A. S. Shawali, M. M. Naoum, and S. A. Ibrahim 2504
Studies on Benzoquinolines [*f*] and [*h*]. I ..... R. P. Tiagi and B. Joshi 2507
The CNDO/2 Study of Barbararyl Cation and Its Isomeric $C_9H_9^+$ Systems ..... S. Yoneda, S. Winstein, and Z. Yoshida 2510
The 9-Barbaralyl Cation .....R. Hoffmann, W.-D. Stohrer, and M. J. Goldstein 2513
Syntheses of Substituted Phenyl-2-thienyliodonium Halides and Their Pyrolysis Reactions ..... Y. Yamada and M. Okawara 2515
The Reaction of Dicarbonyl Compounds with Potassium in the Presence of Trimethylsilyl Chloride ..... T. Murakawa, K. Fujii, S. Murai, and S. Tsutsumi 2520
Bromine Addition to Cyanonorbornene Derivatives ..... S. Kikkawa, M. Nomura, Y. Uno, M. Matsubara, and Y. Yanagida 2523
Peptides Containing Aminophosphonic Acids. I. Reactivity of α-Aminobenzylphosphonic Acid..... K. Yamauchi, M. Kinoshita, and M. Imoto 2528

Peptides Containing Aminophosphonic Acids. II. The Synthesis of Tripeptide Analogs ..... K. Yamauchi, M. Kinoshita, and M. Imoto 2531
Products from the Reaction of Dinitrotetramethylbenzenes with Fuming Nitric Acid. A New Route to Some Polynitro Carbonyl Compounds ..... H. Suzuki and K. Nakamura 2534
A Kinetic Study of the Polymerization of Acrylic Acid in the Presence of Polyvinylpyrrolidone ..... R. Muramatsu and T. Shimidzu 2538
Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XXI. The Effect of Water on the Asymmetric Activity of the Catalyst ..... T. Ninomiya 2545
Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XXII ..... T. Ninomiya 2548
Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel Catalyst. XXIII ..... T. Ninomiya 2551
Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XXIV. The Effect of Unsaturated Compounds on the Asymmetric Activity of the Catalyst ..... T. Ninomiya 2555
The Autoxidation of Phenols Catalyzed by Phthalocyanine-Fe(II) and Salcomine-pyridine ..... M. Tada and T. Katsu 2558
Polar Substituent Constants for Substituted Phenyl Groups. The Extended Taft Equation ..... Y. Nagai, H. Matsumoto, T. Nakano, and H. Watanabe 2560
Restricted Rotation in Aromatic Ketones. I. Substituent Effects on the Barrier to Rotation about the Benzene-to-Carbonyl Bond ..... N. Nakamura and M. Ōki 2565
Decarboxylative Alkylation in the Photolysis of Benzhydryl Esters .... S. Fujita, Y. Ozaki, and H. Nozaki 2571
Thermolysis and Photolysis of Benzopinacol Dicarboxylates .. T. Shirafuji, Y. Yamamoto, and H. Nozaki 2574
Synthesis of Some Nucleoside Analogs of Substituted 1,2,3-Triazole ..... O. Makabe, S. Fukatsu, and S. Umezawa 2577
A Salt Effect on the Reaction of Zinc Carbenoid ..... N. Kawabata, S. Noda, and S. Yamashita 2580
N,N,N',N'-Tetramethylethylenediamine-Copper Salt-catalysed Coupling of Aryl Grignard Reagents with Alkyl and Aralkyl Halides ..... K. Onuma and H. Hashimoto 2582
The Codimerization of Butadiene and Ethylene Catalyzed by Cobaltous Chloride-Ditertiary Phosphine Complexes-Grignard Reagent-ROH Effects of Ditertiary Phosphine Ligands and Alcohols ..... T. Kagawa and H. Hashimoto 2586
Base-catalyzed Condensation of *o*-Nitroacetophenone. V. Hydrogenation of Compound A, a Condensation Product. Formation of a 4-Quinolone from an Indoline System ..... T. Miwa 2590
Aminocyclitols. XXVIII. Bromination of Inosamines and Inosadiamines ..... T. Suami, S. Ogawa, S. Yanagida, and K. Nojima 2593
Inositol Derivatives. IV. Synthesis of Anhydro Derivatives of 1,2-*O*-Cyclohexylidene-inositol ..... T. Suami, S. Ogawa, S. Oki, and K. Ohashi 2597
The Synthesis and Reaction of Monohalogeno-*t*-butyloxycarbonylamino Acids ..... T. Ohnishi, H. Sugano, and M. Miyoshi 2603
A Simple Protecting Group Protection-Purfication "Handle" for Polynucleotide Synthesis. II. ..... K. Tajima and T. Hata 2608
Total Syntheses of Carbohydrates. I. Dihydroxyacetone and DL-Erythrulose ..... T. Ando, S. Shioi, and M. Nakagawa 2611
Total Syntheses of Carbohydrates. II. DL-Erythrose and DL-Threose ..... K. Sonogashira and M. Nakagawa 2616
Total Syntheses of Carbohydrates. III. DL-Glyceraldehyde and 2-Deoxy-DL-*erythro*-pentose ..... K. Mimaki, M. Masunari, G. Nakaminami, and M. Nakagawa 2620
Total Syntheses of Carbohydrates. IV. 2-Deoxy-DL, L- and D-*erythro*-pentoses and Related Sugars ..... G. Nakaminami, S. Shioi. Y. Sugiyama, and S. Isemura, M. Shibuya, and M. Nakagawa 2624
Study of Across-Space Intramolecular Charge-Transfer Interaction by Absorption and Fluorescence Spectroscopy ..... K. Mutai 2635

Notes:

Carbon-14 Isotope Effect on sp^2-sp^3 Hybridization in the Prototropic Equilibrium of *N*-Benzylidenebenzylamine ..... Y. Yukawa, T. Ando, and T. Otsubo 2645
Silyl Radicals. X. On the Mechanism of Uncatalyzed Reduction of Carbon Tetrachloride with Polysilicon Hydride ..... H. Sakurai, M. Yamagata, and M. Murakami 2658
Photolytic Addition of Trichlorosilane to Acetone in the Gas Phase ..... T. Dohmaru, Y. Nagata, and J. Tsurugi 2660

Short Communications

Formation of Myrcene in the Sodium-catalyzed Oligomerization of Isoprene ..... K. Takabe, T. Katagiri, and J. Tanaka 2662
ENDOR Study of Radical Mixture Formed on the Reduction of *p*-Xyloquinone ..... Y. Kotake and K. Kuwata 2663
A Novel Route to Mixed Transition-Metal Complexes ..... K. Yasufuku and H. Yamazaki 2664

No. 9

General and Physical

The Nuclear Magnetic Resonance Spectra of 2-Formylaminopyridine and 2-Formylamino-γ-picoline ..... N. Enomoto and M. Kondo 2665

Kinetic Studies of Intermolecular Hydrogen Bonding in Carboxylic Acids by Means of Ultrasonic Absorption Measurement. I. Fatty Acids ..... T. Sano, N. Tatsumoto, T. Niwa, and T. Yasunaga 2669

Kinetic Studies of Intermolecular Hydrogen Bonding in Carboxylic Acids by Means of Ultrasonic Absorption Measurement. II. Halogeno Carboxylic Acids ..... T. Sano, N. Tatsumoto, Y. Mende, and T. Yasunaga 2673

The Self-diffusion of Chloride Ions in Nickel Dichloride Crystallites and an Isotopic Exchange Reaction between Chlorine Gas and the Crystallites ..... Y. Sensui 2677

Mechanism of Charge-transfer Polymerization. III. Flash Photolysis of *N*-Vinylcarbazole–Chloranil System ..... Y. Shirota, K. Kawai, N. Yamamoto, K. Tada, T. Shida, H. Mikawa, and H. Tsubomura 2683

A New Theory of Melting at High Pressures ..... H. Kanno 2687

On the Change of Electrical Conductivity of Metal on Melting ..... H. Kanno 2692

The Powder ESR Spectra of Some Bis(amino acidato)copper(II) Complexes ..... S. Misumi, T. Isobe, and S. Kimoto 2695

Studies on the Intraction between Long Chain Alcohols and Alkyl Sulfates. II. Molecular Association between Dodecyl Alcohol and Dodecyl Sulfate of Divalent Metals ..... Y. Moroi, K. Motomura, and R. Matuura 2697

Oxygen Vacancies in the Perovskite-type Ferrites. II. Mössbauer Effect in the $SrFeO_{2.5}$-$LaFeO_3$ Solid-solution System ..... H. Yamamura and R. Kiriyama 2702

Electron Spin Resonance Study of Adduct Formation by Bis(trifluoroacetylacetonato)copper(II) with Phosphorus Donor Ligands ..... F. Leh and K. M. Chan 2709

Infrared Spectrum and Normal Vibrations of *N,N*-Dimethylthioacetamide ..... A. Ray and D. N. Sathyanarayana 2712

Ultrasonic Study of Solute-Solvent Interaction in Aqueous Solutions of Tetraalkylammonium Salts ..... F. Hirata and K. Arakawa 2715

Induced Optical Activity of Nucleic Acid-Toluidine Blue O Complex ..... T. Nakamura and Y. J. I'Haya 2720

Hydrogenation by Cyanocobaltate. II. Mechanisms of the Hydrogenations of 1,3-Butadiene and Isoprene Catalyzed by Pentacyanocobaltate(II) in Aqueous Solution ..... T. Funabiki, M. Matsumoto, and K. Tarama 2723

Order of Quencher Participation in Photochemistry. I. Proton Transfer from the Excited *p*-Hydroxybenzophenone in Mixed Solvents of Cyclohexane and Alcohols ..... M. Hoshino and M. Koizumi 2731

On the First Singlet and Triplet Excited States of the Lithium Molecule ..... S. Kohda, K. Ohno, and H. Taketa 2737

Notes:

Mono- and Bi-photonic Ionization of Aromatic Molecules in Liquid Solutions by the 374 nm Light Pulse ..... Y. Taniguchi, Y. Nishina, and N. Mataga 2923

The Influence of Off-axial Ligands on the Crystal-field Engergies of the Copper(II) Ion ..... R. J. Fereday 2927

ESR Study of V_2O_5, MoO_3, and V_2O_5–MoO_3 Catalysts ..... R. S. Mann and K. C. Khulbe 2929

Ultraviolet Luminescence of Ternary Compounds(La, Al, Ce)F_3 ..... K. Narita and A. Taya 2936

Heat Capacity Changes of Some Sodium Alkylsulfates in Aqueous Solutions ..... K. Tamaki, Y. Isomura, and Y. Ohara 2939

Nuclear Quadrupole Resonance of the 1:1 Molecular Complex between Antimony Trichloride and Ethylbenzene ..... T. Okuda, Y. Furukawa, and H. Negita 2940

Linear Relationships between CN Stretching Frequencies and Polar Substituent Constants of L in $Co(CN)_5L^{3-}$ Complexes ..... T. Funabiki and K. Tarama 2945

Sensitized Delayed Fluorescence in Frozen Aqueous Solutions of Dinucleotide- and Polyadenylic Acid-Proflavine Systems ..... Y. Kubota 2949

The Photosensitized Reduction of 4-Nitropyridine *N*-Oxides ..... I. Ono and N. Hata 2951

The Second CMC of the Aqueous Solution of Sodium Dodecyl Sulfate. III. Light-scattering ..... M. Kodama, Y. Kubota, and M. Miura 2953

^{119}Sn Mössbauer Quadrupole Splittings in Compounds with Sn-Mn Bonds ..... V. B. Liengme, J. R. Sams, and J. C. Scott 2956

Analytical and Inorganic

Thermal Decomposition of Ammonium Salts of Transition Metal Oxyacids. I. Thermogravimetric Analysis of Ammonium Paramolybdate ..... I. H. Park 2739

Thermal Decomposition of Ammonium Salts of Transition Metal Oxyacids. II. The Determination of the Gas Constituents Evolved by Ammonium Paramolybdate Decomposition ..... I. H. Park 2745

Thermal Decomposition of Ammonium Salts of Transition Metal Oxyacids. III. Thermogravimetric Analysis of Ammonium Chromate ..... I. H. Park 2749

Thermal Decomposition of Ammonium Salts of Transition Metal Oxyacids. IV. Determination of Constituents of Gases Evolved in Decomposition of Ammonium Chromate ..... I. H. Park 2753

Kinetics of Multidentate Ligand Substitution Reactions. XIII. Substitution Reactions of 1-(Hydroxy-4-methyl-2-phenylazo)-2-naphthol-4-sulfonic Acid (Calmagite) with Nickel(II)-Glutamate, -Aspartate, -Iminodiacetate, -Nitrilotriacetate and -Diethylenetriamine Complexes and That with the Cobalt(II)-Nitrilotriacetate Complex ..... M. Kodama, T. Sato, and S. Karasawa 2757

Kinetics of Multidentate Ligand Substitution Reactions. XIV. Substitution Reactions of Ethylenediaminetetraacetic Acid (EDTA) and *N*-(2-Hydroxyethyl)ethylenediamine-*N*,*N*′,*N*′-triacetic Acid (EDTA-OH) with Nickel(II)-Ethylenediaminemonoacetate (EDMA) and Diethylenetriamine (Dien) Complexes ..... M. Kodama, M. Hashimoto, and T. Watanabe 2761

The Extraction and Spectrophotometric Determination of Titanium(IV) with Tiron ..... Y. Wakamatsu and M. Otomo 2764

Cobalt(II) and -(III) Complexes of 1,5-Dialkylpentane-2,4-diones ..... I. Yoshida, H. Kobayashi, and K. Ueno 2768

Stable Paramagnetic Species in Natural Strontium Sulfate Crystals ..... T. Matsuzaki, M. Setaka, V. V. Gromov, and T. Kwan 2773

Chemical Behavior of Carbon in High-purity Silicon in the Dissolution and Fusion of the Matrix ..... T. Nozaki, Y. Makide, Y. Yatsurugi, Y. Endo, and N. Akiyama 2776

Notes:

Spectrophotofluorometric Determination of Terbium with α,α′-Ethylenediiminodi(*o*-hydroxyphenylacetic acid) ..... T. Taketatsu and S. Yoshida 2921

Preparation of Rhodium Acrolein Complexes ..... M. Hidai, K. Ishimi, M. Iwase, and Y. Uchida 2935

The Syntheses and Properties of Some 2-Methyl-4-phenyl-1,5-benzodiazepinium Chlorometalates ..... A. Furuhashi, S. Komatsu, and A. Ouchi 2942

Organic and Biological

Reactions of Diazoketones in the Presence of Metal Chelate. IV. Formation and Reaction of Carbonyl Ylides ..... K. Ueda, T. Ibata, and M. Takebayashi 2779

Anodic Reaction of 2-Furoic Acids. II. Electrolysis of Methyl 5-Acetyl-2-furoate and Its Homologous in Protic Solvents ..... S. Torii, H. Tanaka, and T. Okamto 2783

Reaction of Vinylic Radicals with Oxygen ..... N. Wada and K. Tokumaru 2787

The Nuclear Magnetic Resonance Study of Several *o*-Disubstituted Benzenes ..... M. Kondo 2790

Reaction of α-Halosulfoxides with Amines ..... T. Numata and S. Oae 2794

The Photochemistry of 4,5-Disubstituted 1,3-Dioxolen-2-ones ..... T. Hiyama, S. Fujita, and H. Nozaki 2797

The Phenolysis of Tetrahydrolinalyl and 2-Octyl Systems. The Rates, Steric Courses, and Product Distributions ..... K. Okamoto and T. Kinoshita 2802

Friedel-Crafts Aralkylation. II. The $AlCl_3 \cdot CH_3NO_2$-catalyzed Phenethylation of Benzene and Toluene with 2-Arylethyl Chlorides in a Nitromethane Solution ..... M. Ichii 2810

Aroyl Arenesulfonyl Peroxides. IV. The Mechanism of Carboxy-inversion of Benzoyl *p*-Toluenesulfonyl Peroxide ..... R. Hisada, H. Minato, and M. Kobayashi 2814

Photolyses of Alkyl Sulfinates and Sulfites ..... M. Kobayashi, H. Minato, Y. Miyaji, T. Yoshioka, K. Tanaka, and K. Honda 2817

β-(2,3,6-Cycloheptatrien-1-yl)ethylcarbene. The Synthesis of 9-Substituted Bicyclo[4.2.1]nona-2,4,7-trienes and 9-Substituted Barbaralanes ..... H. Tsuruta, K. Kurabayashi, and T. Mukai 2822

Heterocycles Structurally Influenced by a Side Chain. II. 7-Phenacylxanthopterins and 6-Phenacylisoxanthopterins ..... Y. Iwanami and T. Seki 2829

1,2: 8,9-Dibenzo-3,10-bisdehydro[14]annulene-5,12-dione ..... T. Kojima, Y. Sakata, and S. Misumi 2834

Benzo- and Naphtho-derivatives of Triptycene: Synthesis and Properties ..... M. Sugihashi, R. Kawagita, T. Otsubo, Y. Sakata, and S. Misumi 2836

Studies on Aminosugars. XXIX. The Synthesis of 3′-*O*-Methylkanamycin ..... H. Umezawa, T. Tsuchiya, R. Muto, and S. Umezawa 2842

Studies on Aminosugars. XXX. The Synthesis of 3′-Deoxykanamycin ..... S. Umezawa, Y. Nishimura, H. Hineno, K. Watanabe, S. Koike, T. Tsuchiya, and H. Umezawa 2847

Improved Solid-Phase Synthesis of Tryptophan-Containing Peptides. I. Use of Hydrogen Chloride in Formic Acid as a Reagent for the Cleavage of *t*-Butyloxycarbonyl Group ..... M. Ohno, S. Tsukamoto, S. Makisumi, and N. Izumiya 2852

The Reaction of Elemental Sulfur with Organic Compounds. IV. The Reactions of *N*-Arenesulfonylsulfilimine and Sulfoximine with Sulfur and Diaryl Disulfide ..... S. Oae, Y. Tsuchida, K. Tsujihara, and N. Furukawa 2856

Optical Reaction of Aspartic Acid by Using Copper Complexes of Optically Active Amino Acids ..... K. Harada and W. Tso 2859

Polymerization of Vinyl Monomers in the Presence of Surface Active Agents. II. The Rate of Polymerization of Methyl Methacrylate ..... T. Asahara, M. Seno, S. Shiraishi, and Y. Arita 2862

Model Reactions for the Biosynthesis of Thyroxyine. XIX. The Formation of a Thyroxine Precursor by Photooxidation of 4-Hydroxy-3,5-diiodophenylpyruvic Acid in Organic Solvents ..... K. Omura, A. Nishinaga, and T. Matsuura 2866

The Structure and Synthesis of Rishitinol. A Sesquiterpene Alcohol from Diseased Potato Tubers ..... N. Katsui, A. Matsunaga, K. Imaizumi, T. Masamune, and K. Tomiyama 2871

Studies of Acyl and Thioacyl Isocyanates. IX. The Cycloaddition Reactions of Benzoyl and Thiobenzoyl Isocyanates with Anils ..... O. Tsuge and S. Kanemasa 2877

Oxidative Coupling of Aminonaphthols ..... Y. Omote, Y. Takizawa, and N. Sugiyama 2882

The Synthesis and Stereochemistry of 2,3-Ferrocenocyclopentenone ..... T. Shirafuji, A. Odaira, Y. Yamamoto, and H. Nozaki 2884

The Constituents of Hops (*Humulus lupulus* L.). VII. The Rapid Analysis of Volatile Components ..... Y. Naya and M. Kotake 2887

Syntheses and Reactions of Ferrocene-Containing Polymers. VI. Polarography and Electron Transfer Equilibria of Some Ferrocene-Containing Polymers ..... T. Nakashima and T. Kunitake 2892

Studies on Tritylated Sucrose. II. Di-*O*-tritylsucroses ..... T. Otake 2895

Electrocatalytic Chemistry of the Transition Metal Complexes. II. Dehydrogenation of Cyclohexane Catalyzed by the Electroreduced Cobalt Complex of $\alpha,\beta,\gamma,\delta$-Tetraphenylporphine ..... H. Kageyama, M. Hidai, and Y. Uchida 2898

Aroyl Arenesulfonyl Peroxides. VI. Benzoyloxylation and *p*-Toluenesulfonyloxylation of Aromatic Compounds with Benzoyl *p*-Toluenesulfonyl Peroxide ..... R. Hisada, M. Kobayashi, and H. Minato 2902

Photoylses of Diaryl α-Disulfones ..... M. Kobayashi, K. Tanaka, and H. Minato 2906

Diazotization of Tetrafluoroanthranilic Acid and Several Reactions of Related Compounds ..... S. Hayashi and N. Ishikawa 2909

Notes:

Mechanism of Chromic Acid Oxidation of Aldehydes ..... C. Goswami and K. K. Banerji 2925

The Preparation of Acyl Alkoxycarbonyl Sulfides and the Related Compounds ..... S. Motoki and H. Satsumabayashi 2930

Reactions between Acyl Halides and Silver Hyponitrite ..... M. Sekiguchi, M. Kobayashi, and H. minato 2932

Synthesis of Aliphatic Isoselenocyanates by the Reaction of Aliphatic Isocyanides with Selenium in the Presence of Triethylamine ..... N. Sonoda, G. Yamamoto, and S. Tsutsumi 2937

Acylation of Sydnones ..... H. J. Tien and M. Ohta 2944

Effect of Transition Metal Chlorides in the Coupling of Allyl Chloride and *n*-Butylmagnesium Bromide ..... Y. Ohbe and T. Matsuda 2947

Aromatic Nitration. III. Competitive Nitration of Toluene and Benzene in Carbon Tetrachloride ..... A. Hirose, K. Matsui, and S. Sekiguchi 2955

Applied

Constitutens and Properties of Ammoniated Slurry from Wet-process Phosphoric Acid ..... T. Akiyama and J. Ando 2915

Short Communication

Synthesis and Thermal Decomposition of 2,2′-Diazido-2,2′-azoadamantane ..... M. Funabashi, A. Tanaka, and J. P. Anselme 2958

No. 10

General and Physical

The Crystal Structure of Cupric Complex with Succinimide I. Cesium Tetrakis(succinimidato)copper(II) Dihydrate ..... T. Tsukihara, Y. Katsube, K. Fujimori, and T. Ito 2959

Study on Reverse Osmosis. The Permeation Behavior of Amino Acid Solutions through Cellulose Acetate Membranes ..... C. Kamizawa, H. Masuda, and S. Ishizaka 2964

Study on Reverse Osmosis. The Permeation Behavior of Surfactant Solutions through Cellulose Acetate Membranes ..... C. Kamizawa and S. Ishizaka 2967

Shapes of Fundamental Bands of Liquid Carbon Disulfide. Vibrational and Reorientational Relaxations ..... M. Kakimoto and T. Fujiyama 2970

Vibronic Bands of Phosphorescence Spectra of Quinoxaline in Host Crystals ..... K. Ikegami and M. Ito 2974

Rate-controlling Processes in the Phosphidation of Copper by Phosphorus Vapor ..... Y. Sasaki and S. Ueda 2977

Ternary Diffusion in the ^{20}Ne–^{22}Ne–CO_2 System ..... Y. Oishi, M. Sugisaki, Y. Kamei, and Y. Shono 2984

Photochemistry of Acridines. XVIII. Photoreduction by Nonpolar H-donors and the Disproportionation of C-Radicals ..... M. Hoshino, S. Niizuma, and M. Koizumi 2988

Statistical Thermodynamics and Adsorption ..... R. J. Tykodi 2993

The Catalytic Exchange of Hydrogen-Deuterium on Copper-Nickel Alloy Plates after Various Surface Treatments ..... Y. Takasu and T. Yamashina 2997

ESR Studies of the Conformation and Restricted Rotation of 4-Phenyl-1,3-dioxane Anion ..... M. Iwaizumi, T. Matsuzaki, and T. Isobe 3002

Computer Simulations of the ESR Spectra of the Triplet Dimers of Bis-(*N*-Salicylidenemethylaminato)copper(II) in Toluene ..... M. Chikira and T. Isobe 3006

Infrared Absorption Intensities of Out-of-plane CH Bending Vibrations of Substituted Benzenes. IV. Solvent Effect on the Intensities of the Bands of Aniline ..... S. Higuchi, E. Kuno, S. Tanaka, and H. Kamada 3011

Vibration Spectra and Molecular Structures of *n*-Butyl Chloride and *n*-Butyl Bromide in Relation to Parallel (1 : 3) Interactions ..... T. Fujiyama 3016

Absorption Band Shapes and Molecular Reorientation of Liquid Methyl Cyanide ..... M. Kakimoto and T. Fujiyama 3021

CNDO Calculations on the Electronic Spectra of Several Saturated Compounds ..... N. Ohmichi, A. Tariji, and T. Nakajima 3026

Properties of Water in Macromolecular Gels. IV. Proton Magnetic Resonance Studies of Water in Macromolecular Gels ..... M. Aizawa, J. Mizuguchi, S. Suzuki, S. Hayashi, T. Suzuki, N. Mitomo, and H. Toyama 3031

Molecular Vibrations, Conformational Analyses, and Force Fields of Normal and Monodeuterated (Methylthio)-methanethiol ..... M. Ohsaku, Y. Shiro, and H. Murata 3035

Electrochemical Behaviour of the Lithiated Nickel Oxide Crystal ..... H. Yoneyama and H. Tamura 3048

The Preparation of Divalent Cation Non-permselective Cation Exchange Membrane by Coating with Vinylon Film ..... R. Dohno, T. Azumi, and S. Takashima 3054

Normal Vibrations and Far-infrared Spectra of Ammonium Chloride and Ammonium Chloride-d_4 Crystals ..... K. Fukushima and H. Yamamoto 3058

Cotton Effect Induced in Optically Inactive Molecules and Molecular Complexes by Optically Active Environment. I. Pyrene, TCNNQ, and Their Molecular Complex in Acetylcellulose Film ..... Y. J. I'Haya and T. Yunoki 3065

Activity Coefficients for the System Glycylglycine–Urea–Water ..... H. Uedaira 3068

Formation Constants of Some Bivalent Metal Chelates of *N*-Phenylbutyrohydroxamic Acid ..... J. P. Shukla and S. G. Tandon 3073

Order of Quencher Participation in Photochemistry. II. Quenching Action of Ethanol on the Photoreduction of *p*-Aminobenzophenones ..... M. Hoshino and M. Koizumi 3075

Heat Capacities of Antimony Trichloride and Tribromide ..... K. Takeyama and T. Atoda 3078

A Kinetic Study of the Monomer-Dimer Reaction in Propionic Acid by Means of Ultrasonic Absorption Measurements ..... N. Tatsumoto, T. Sano, and T. Yasunaga 3096

Notes:

The Chlorine Nuclear Quadrupole Resonance of *o*-, *m*-, and *p*-Chlorobenzamide ..... S. Kondo, H. Inoue, A. Sakamoto, and H. Katsumata 3206

Hydrogen-transfer Reaction between Ketones and Alcohols over Metal Oxide Catalysts ..... Y. Okamoto, T. Imanaka, and S. Teranishi 3207

Polymorphic Transformation in Copper Ferrite and Manganite by Grinding ..... Y. Uehara 3209

Vapor Pressure of Acetylacetone below Normal Boiling Point .....K. Nakanishi and O. Tōyama 3210

Analytical and Inorganic

Studies of Ruthenium Complexes. III. Kinetics of Isotopic Ligand-Exchange Reactions of Halogenopentaammineruthenium(III) Complexes in Aqueous Solution ..... T. Shinohara, T. Yamada, N. Takebayashi, S. Hiraki, and A. Ohyoshi 3081
An NMR Study of Metal Complexes Containing Acetylacetone and Related Compounds. IV. The NMR Spectra and the Ligand-exchange Reaction of Cobalt(III) Complexes Containing *N,N'*-Ethylenebis(acetylacetonimine) and Amino Acid .....Y. Fujii 3084
The Kinetics of Electron-transfer Reactions between Oxalato-Cobalt(III) Complexes and Iron(II) in Acid Aqueous Solutions .....K. Ohashi 3093
Stereoselectivity in Mixed Tris-type Complexes of Cobalt(III) with Glycine and L-Glutamic Acid ..... K. Kawasaki and M. Shibata 3100
Derivatographic Studies on Transition Metal Complexes. VIII. Thermal Deaquation-Anation Reaction of *cis*-$[CoX(H_2O)N_4]Y_2$ Type Complexes in Solid Phase .....R. Tsuchiya, M. Suzuki, and E. Kyuno 3105
Kinetics and Stoichiometry of Nitrogen Fixation with $TiCl_3$-Mg and VCl_3-Mg in Tetrahydrofuran..... .....A. Yamamoto, S. Go, M. Ookawa, M. Takahashi, S. Ikeda, and T. Keii 3110

Notes:

Thin-layer Chromatographic Behavior of Transition Metals on a Weakly Basic Cellulosic Ion-Exchanger in Hydrazoic Acid Medium .....R. Kuroda and N. Kojima 3211
The Effects of Additives on the Chemical Behavior of ^{60}Co Recoil Species in Neutron-irradiated Benzene Solutions of Tris(acetylacetonato)cobalt(III) .....T. Tominaga and Y. Nishi 3213

Organic and Biological

Kinetics of Liquid-phase Hydrogenation of Aliphatic α,β-Unsaturated Aldehyde over Raney Cobalt Catalyst Modified with Co-, Mn-, Ni- and $PdCl_2$ .....K. Hotta and T. Kubomatsu 3118
The Photolysis of Ethoxycarbonylmethyltriphenylphosphonium Salts .... Y. Nagao, K. Shima, and H. Sakurai 3122
Brominations of Aliphatic Ketones by Copper(II) Bromide in Organic Solvents. II. The Reaction of Acetone with Copper(II) Bromide in *N,N*-Dimethylformamide .....Y. Kojima, K. Usui, and S. Kawaguchi 3127
Reactions of Cuprous Acetate with Organic Halides.....T. Kawaki and H. Hashimoto 3130
Effects of Substituents on the Smiles Rearrangement of *O*-*s*-Triazinyl-2-aminophenols .... N. Maeno, T. Itagaki, S. Uno, and K. Matsui 3133
The $N^1 \rightarrow N^2$ Migration of the *s*-Triazinyl Group of 4-Substituted N^1,N^1-Bis-(*s*-triazinyl)-*o*-phenylenediamines .....K. Nakamura, N. Nohara, and K. Matsui 3140
Syntheses of Isoprenoids from Isoprene. III. The Dimerizations of Dimethylcyclopropanes .... J. Tanaka, T. Katagiri, K. Takabe, and T. Sakamoto 3147
Syntheses and Reactions of Functional Polymers. LXVI. Activation of Carboxylic Acid by Means of Polymers Containing Hydroxamic Acid Residue and *N*-Hydroxysuccinimide Residue..... ..... M. Narita, T. Teramoto, and M. Okawara 3149
The Stereochemistry of Nucleophilic Addition. V. The Reformatsky Reaction of 2-Phenylpropanal with Methyl α-Bromopropionate .....T. Matsumoto, Y. Hosoda, K. Mōri, and K. Fukui 3156
Oxidative Dimerization of Pyrrole Derivatives. II. The Formation and Structure of Dimers of 3-Alkoxycarbonyl-substituted Pyrryls .....K. Tomita and N. Yoshida 3160
Studies of the Synthesis of Furan Compounds. XXVIII. Syntheses and Steric Configurations of 3-(5-Nitro-2-furyl)-2-(2-furyl)acrylonitrile and Its Bromine Derivatives ..Y. Kato, T. Kuboyama, and I. Hirao 3165
Solvent Shifts of Methyl Proton Resonances of Pinanols and Related Compounds .....T. Hirata 3169
Syntheses and Reactions of Metal Organics. VII. Reactions of *n*-Butoxytitanium Chlorides with Saturated Cyclic Ethers .....N. Yoshino and T. Yoshino 3172
The Reaction of Troponoid with Ylide. III. The Reaction of Tropone with Pyridinium Compounds .... Y. Sugimura, N. Soma, and Y. Kishida 3174
The Kinetic Study on the Reaction of Oxaziridine with Tri-*n*-butylphosphine..... ..... S. Tamagaki, K. Sakaki, and S. Oae 3179
Linear Conjugated Systems Bearing Aromatic Terminal Groups. IX. Syntheses and Electronic Spectra of α,ω-Di-1-anthrylpolyenes .....Y. Takeuchi, S. Akiyama, and M. Nakagawa 3183
Compounds Related to Acridine. VIII. Reaction of 9-Vinylacridine with *p*-Substituted Nitrosobenzenes.... ..... O. Tsuge and A. Torii 3187
Thiocyanoacetate. IV. The Reaction of Ethyl Thiocyanoacetate with Aromatic Aldehydes in the Presence of Thioureas .....S. Kambe and T. Hayashi 3192

The Michael Reactions of Substituted 9,9'-Bifluorenylidenes with 2-Iodo- and 2,7-Diiodofluorene, and Some Other Reactions of Iodofluorenes ..... M. Minabe and K. Suzuki 3196
Photochemical Reactions of 3-Alkyl-4-phenylsydnones ..... Y. Huseya, A. Chinone, and M. Ohta 3202
Notes:
The Effect of Intramolecular Hydrogen Bonding on Benzoylation of 2-(*N*,*N*-Dialkylamino)ethanols ..... K. Ichimura and J. Yoshida 3215
Synthesis of the New 1,4,2-Dithiazine 1,1-Dioxides ..... K. Nakahashi, S. Hirooka, and K. Hasegawa 3217
Studies of Dithiobiurets. I. Some New Cyclization Reactions of 1,1-Dimethyl-2,4-dithiobiuret ..... I. Iwataki 3218
Studies of Dithiobiurets. II. The Thermal Decomposition of 1,1-Dimethyl-5-acetyl-2,4-dithiobiuret ..... I. Iwataki and A. Ueda 3220
Studies on the Derivatives of Thiiranes. II. Ring-opening of 2-Alkoxymethylthiiranes and Their Derivatives ..... E. Kameyama, M. Nakajima, and T. Kuwamura 3222
Free-Radical Chlorination of Alkylsilanes. VII. The Hydrogen Abstraction from 1-Silabicyclo[2.2.1]heptane by the Trichloromethyl Radical ..... Y. Nagai, S. Inaba, H. Matsumoto, and H. Watanabe 3224
Inositol Derivatives. VI. Convenient Synthesis of DL-*proto*-Quercitol from *myo*-Inositol ..... T. Suami, S. Ogawa, T. Ueda, and H. Uchino 3226

Short Communications

Three Crystalline Phases of Octachloropropane as Evidenced by Chlorine NQR ..... M. Hashimoto and K. Mano 3228
Complexes of Copper(II) with Cyclodextrins ..... Y. Matsui, T. Kurita, and Y. Date 3229
Novel Radical Salt Polymer Catalyst Carrying Enhanced Para-Ortho-Hydrogen Conversion ..... K. Murano, H. Kawazura, H. Inokuchi, and T. Ohmori 3230

No. 11

General and Physical

An MO Approach to the Interpretation of Organic Mass Spectra. I. Relative Bond Energy of the Molecule Ion by the Extended Hückel Method ..... M. Ogata and H. Ichikawa 3231
Adsorption of *N*-Vinyl-2-pyrrolidone at the Mercury/Solution Interface ..... T. Yoshida, T. Ohsaka, and H. Yamamoto 3236
Competitive Adsorption of Polyvinylpyrrolidone with *n*-Alkyl Alcohols at the Mercury/Solution Interface ..... T. Yoshida, T. Ohsaka, and Y. Iida 3241
Adsorption of Polyethyleneglycol at the Mercury/Solution Interface ..... T. Yoshida, T. Ohsaka, and M. Suzuki 3245
The Isomerization of Propylene Oxide on Zeolite Catalysts ..... T. Imanaka, Y. Okamoto, and S. Teranishi 3251
Studies on Intermolecular Complex Formation. II. Crystal Structure of Cytosine–*N*-Benzoylglycine Complex Monohydrate ..... C. Tamura, T. Hata, S. Sato, and N. Sakurai 3254
The Effects of Higher-boiling Compounds on the Liquid-phase Isomerization of *m*-Xylene over a Silica-Alumina Catalyst under Pressure ..... H. Takaya, N. Todo, T. Hosoya, H. Ōshio, M. Yoneoka, and T. Minegishi 3262
Monolayers of Copolymers of Methyl Acrylate and *n*-Butyl Acrylate and Mixed Monolayers of Their Homopolymers ..... S. Hironaka, T. Kubota, and K. Meguro 3267
Studies of the Sodium Salts of Homologues of Alkyl Sulfates in Aqueous Solutions in Relation to the Water Structure ..... H. Endo 3270
Bond Alternation in Tropone as Studied by Gas Electron Diffraction ..... M. Ogasawara, T. Iijima, and M. Kimura 3277
The Singlet-triplet Absorption Spectra of Heterocyclic Amine *N*-Oxides (I) ..... T. Kubota, M. Yamakawa, and Y. Mizuno 3282
Ultrasonic Study on Dilute Aqueous Solutions of Diamines ..... K. Sasaki and K. Arakawa 3287
Comparison of the Electronic Spectra of Geometric Isomers. II. 1,2-Disubstituted Ethylenes ..... T. Fueno and K. Yamaguchi 3290

Comparison of the Electronic Spectra of Geometric Isomers. III. β-Substituted Styrenes ..... T. Fueno, K. Yamaguchi, and Y. Naka 3294

Behavior of Oxygen Species on the Nickel Oxide Catalyst Surface ..... S. Chaudhri, Y. Kera, and K. Hirota 3301

Directly Bonded Carbon-Hydrogen Coupling Constants of *n*-Pentane ..... I. Ando, A. Nishioka, and M. Kambe 3306

Far-infrared Spectra of Zinc Halide Complexes with Acetonitrile ..... T. Kamo and M. Kimura 3309

Electrical Conduction in TCNQ Anion Radical Salts ..... N. Sakai, I. Shirotani, and S. Minomura 3314

Phase Transition of Alkali Metal Cation-TCNQ Anion Radical Simple Salts ..... N. Sakai, I. Shirotani, and S. Minomura 3321

The Isomerization of *n*-Butenes over Acidic Ion-exchange Resin ..... T. Uematsu 3329

The Vibrational Assignment and Force Constants of Halogenomethylsilanes and Their Germanium Analogues: $ClCH_2SiH_3$, $ClCH_2SiD_3$, $BrCH_2SiH_3$, $BrCH_2SiD_3$, $ClCH_2GeH_3$, and $ClCH_2GeD_3$ ..... K. Ohno and H. Murata 3333

Fractionation of Tritiated Water in Potassium Chromium Sulfate Dodecahydrate ..... H. Tanaka, T. Kado, and H. Negita 3342

The Diffuse Reflection Spectra of 1-Arylazo-2-naphthols Deposited on Various Synthetic Fibers ..... Y. Matsunaga and N. Miyajima 3345

A Computer Simulation of the Oxidation Mechanism. The Liquid-phase Oxidation of Cumene Catalyzed by Triphenylsulfonium Chloride ..... K. Ohkubo and T. Hashimoto 3350

Deuteron Magnetic Resonance Studies of Structures and Phase Transitions in the Tantalum-Deuterium System ..... K. Nakamura 3356

Electron Spin Resonance Studies of the Carbon Dioxide Anion Radical Adsorbed on X-Type Zeolites ..... K. Sogabe, A. Hasegawa, Y. Yamada, and M. Miura 3362

The Mechanism of Decomposition of Hydrogen Peroxide by Iodine in Acid Solutions. The Rates of Associated Reactions ..... I. Matsuzaki, R. Simic, and H. A. Liebhafsky 3367

The Estimation of the Surface Properties of Metal Oxides by the Use of TCNQ Adsorption. II. The Electron-donor Property of Silica–Alumina, Silica–Titania, and Alumina–Titania System Surfaces ..... H. Hosaka, N. Kawashima, and K. Meguro 3371

Electrical and Optical Properties of the Iodine Complexes of Phenoxazine, Phenoselenazine, and Benzophenothiazines ..... Y. Matsunaga and Y. Suzuki 3375

Electron Spin Resonance Study of Amino Acid Radicals Produced by Fenton's Reagent ..... H. Taniguchi, H. Hasumi, and H. Hatano 3380

The Resonance Raman Spectrum of the Poly(vinyl alcohol)–Iodine Complex ..... F. Inagaki, I. Harada, T. Shimanouchi, and M. Tasumi 3384

The Crystal Structure of the Polymerization Catalyst of Acetaldehyde and Its Derivatives. II. The Crystal and Molecular Structure of the Trimethylamine Oxide Adduct of Dimethylaluminum *N*-Phenylbenzimidate, $[(CH_3)_2Al\cdot O\cdot C(C_6H_5):N(C_6H_5),\ ON(CH_3)_3]$ ..... Y. Kai, N. Yasuoka, N. Kasai, and M. Kakudo 3388

The Crystal Structure of the Polymerization Catalyst of Acetaldehyde and Its Derivatives. III. The Crystal and Molecular Structure of the Bis(dimethylaluminum *N*-phenylbenzimidate–acetaldehyde) Complex, $[(CH_3)_2Al\cdot O\cdot C(C_6H_5):N(C_6H_5),\ CH_3CHO]_2$ ..... Y. Kai, N. Yasuoka, N. Kasai, and M. Kakudo 3397

The Crystal Structure of the Polymerization Catalyst of Acetaldehyde and Its Derivatives. IV. The Crystal and Molecular Structure of Dimethylaluminum *N*-Phenylbenzimidate–*O*-(Trimethylaluminum)–Acetaldehyde Complex, $[(CH_3)_2Al\cdot O\cdot C(C_6H_5):N(C_6H_5),\ CH_3CHO,\ Al(CH_3)_3]$ ..... Y. Kai, N. Yasuoka, N. Kasai, and M. Kakudo 3403

Measurements of Acid-strength Distribution beyond $H_0=-8.2$ of Silica-Alumina Catalysts by UV-Spectrophotometric *n*-Butylamine Titration Method ..... J. Take, T. Tsuruya, T. Sato, and Y. Yoneda 3409

Topological Index and Thermodynamic Properties. I. Empirical Rules on the Boiling Point of Saturated Hydrocarbons ..... H. Hosoya, K. Kawasaki, and K. Mizutani 3415

Notes:

A Study of Catalysis by Uranium Oxide and Its Mixed Catalysts. III. A Comparison of the Uranium Oxide Catalyst with Vanadium Oxide, Molybdenum Oxide and Tungsten Oxide Catalysts for the Catalytic Oxidation of Carbon Monoxide ..... F. Nozaki and K. Ohki 3473

An MO-theoretical Account of the Catalytic Property of Transition-metal Carbides and Nitrides in Dehydrogenation Reactions ..... K. Ohkubo, H. Shimada, and M. Okada 3475

Colloidal Structure of Aluminum Soaps Dispersed in Organic Media ..... Y. Uzu and M. Hattori 3476

Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. III. 2,4-Dinitrophenol Complexes with Various Anilines ..... N. Inoue and Y. Matsunaga 3478

Molecular Vibrations and Force Fields of Alkyl Sulfides. V. Infrared Spectra of Methyl Isopropyl Sulfide .....
..... M. Ohsaku, Y. Shiro, and H. Murata 3480

Reaction Rates in the Monomer-Dimer Equilibrium of TCNQ Anion Radicals as Studied by the Temperature-Jump Method ..... A. Yamagishi, Y. Iida, and M. Fujimoto 3482

On the Phase Transition of *N*-Methylchloroacetamide ..... H. Chihara, T. Kiichi, and N. Nakamura 3484

Analytical and Inorganic

Conditions Favorable for the Formation of γ-FeOOH by Aerial Oxidation in an Acidic Suspension of Iron Metal Powder ..... M. Kiyama, T. Akita, S. Shimizu, Y. Okuda, and T. Takada 3422

The Preparation and Some Reactions of Platinum(II) and Palladium(II) Complexes of Vinyl Ethers .....
..... Y. Wakatsuki, S. Nozakura, and S. Murahashi 3426

Determination of the Formation Constants of Actinoid and Lanthanoid Lactate Complexes by Means of Electrophoresis ..... M. Sakanoue and M. Nakatani 3429

Potentiometric Titration of Iron(III) with Hydrazine Sulphate at Room Temperature .....
..... G. G. Rao, P. V. K. Rao, and G. B. B. Rao 3434

Titrimetric Determination of Iron(II), Molybdenum(V), and Thallium(I) with Potassium Chlorate Using Redox Indicators ..... G. G. Rao and C. Radhakrishnamurty 3437

The Determination of Sulfide- and Sulfate-Sulfur in Igneous Rocks with Tin(II)-Strong Phosphoric Acid and Storng Phosphoric Acid ..... S. Nagashima, M. Yoshida, and T. Ozawa 3446

Isomerism of the Metal Complexes Containing Multidentate Ligands. II. The Cobalt(III), Cobalt(II), and Nickel(II) Complexes of *N*,*N*,*N*′,*N*′-Tetrakis(2-aminoethyl)ethylenediamine and -1,2-propanediamine and Their Absolute Configurations ..... Y. Yoshikawa, E. Fujii, and K. Yamasaki 3451

Notes:

Syntheses of 1,ω-Bis(5-ethyl-8-hydroxy-7-quinolyl)alkanes and Their Copper(II) Complexes .....
..... K. Tobinaga, M. Mukaino, T. Inazu, and T. Yoshino 3485

An ESR Study of the 1:2 Complexes of Copper(II) with Optically-active and Racemic α-Amino Acids .....
..... H. Yokoi, M. Sai, and T. Isobe 3488

Organic and Biological

Substituent Effects on Suspected Phenonium Ion Reactions ..... C. A. Kingsbury and D. C. Best 3440

The Synthesis of 2,3-Dimethoxy-5-methyl-*p*-benzoquinone ..... K. Sato, S. Inoue, and H. Sato 3455

The Stereochemistry and the Circular Dichroism of Several Pinane Derivatives ..... T. Hirata 3458

Notes:

O-Alkylation of Phenols by Esters ..... T. Kito, N. Yanai, and I. Hirao 3490

Studies of Organosulfur Compounds. VII. The Preparation and Reaction of Some Crystalline Piperidinium Salts of Aliphatic Dithio Acid ..... S. Kato and M. Mizuta 3492

Dimorphic Forms of 2-Amino-4-(*N*-methylanilino)-6-isopropenyl-*s*-triazine .....
..... Y. Yuki, T. Taika, and M. Nagano 3494

The Determination of the Enantiomeric Purity of Methyl *p*-Tolyl Sulfoxide by Means of an NMR Shift Reagent
..... H, Nozaki, K. Yoshino, K. Oshima, and Y. Yamamoto 3495

Synthetic Studies of Carbohydrate Derivatives with Photochemical Reaction. III. Solvent Effects on the Photocycloaddition of Acetone to 3,4,6-Tri-*O*-acetyl-D-glucal ..... K. Matsuura, Y. Araki, and Y. Ishido 3496

The Stereochemistry of Hydrogenation with Tris(triphenylphosphine)chlororhodium .....
..... Y. Senda, S, Mitsui, H. Sugiyama, and S. Seto 3498

The Photochemical and Thermal Reaction of Ethyl Azidoformate with Cyclohexanone Ethylene Acetal.....
.....T. Hiyama, S. Fujita, and H. Nozaki 3500

The Stereochemistry of (+)-Occidentalol. Further Support for the Revised Structure.....
.....T. Suga, K. Imamura, T. Shishibori, and E. von Rudloff 3502

Reactions of Benzenediazonium-2-carboxylate with Arylimino- and Acylmethylenetriphenylphosphoranes.....
.....T. Kawashima and N. Inamoto 3504

Applied

Elektrochemische Untersuchungen über den Litheffekt.....T. Suga 3464

Short Communication

Reduction of Carbonyl Compounds with Various Hydrosilane–Rhodium(I) Complex Combinations.....
.....I. Ojima, T. Kogure, M. Nihonyanagi, and Y. Nagai 3506

No. 12

General and Physical

A Deuteron Magnetic Resonance Study of the Motion of Ligands in $[Co(ND_3)_5(D_2O)](ClO_4)_3$ .....T. Ito 3507

A Consideration of Orbital Interaction in the Reaction of $^1\Delta_g$ Molecular Oxygen with Ethylene Derivatives ..
..... S. Inagaki, S. Yamabe, H. Fujimoto, and K. Fukui 3510

Electron Spin Resonance during Photolysis of *p*-Benzoquinone and Its Derivatives in Ethanol .....
..... H. Yoshida, K. Hayashi, and T. Warashina 3515

Positive Charge Distribution of Secondary Alkylamines and Its Correlation with the Bond-Scission Probability Appearing in Their Mass Spectra.....M. Yamamoto, I. Fujita, M. Itoh, and K. Hirota 3520

Zero-point Structure of a Molecule Containing Two Symmetric Internal Rotors. Acetone .....
..... T. Iijima 3526

Nuclear Quadrupole Resonance Study of Chloral Hydrate .....H. Chihara and N. Nakamura 3530

Photolysis of Nitromethane in Gas Phase at 313 nm.....K. Honda, H. Mikuni, and M. Takahasi 3534

The Resonance Raman Effect of Azobenzene and *p*-Aminoazobenzene .....
..... S. Koide, Y. Udagawa, N. Mikami, K. Kaya, and M. Ito 3542

Note:

An SCF-MO-INDO Study of Isotropic and Anisotropic Hyperfine Coupling Constants for Sigma Radicals ..
..... T. Morikawa and O. Kikuchi 3715

Analytical and Inorganic

Characterization of the Geometrical Isomers of the Carbonato(or oxalato)-aminoacidatodiammine Complexes of Cobalt(III) .....K. Nakai, S. Kanazawa, and M. Shibata 3544

Determination of the Stability Constants of the Bis(selenocyanato)mercury(II) and Tris(selenocyanato)mercurate(II) Complexes by a Polarographic Method.....T. Murayama and A. Takayanagi 3549

Note:

Binuclear Structure of Copper(II) 2-Pyridinolate Complex .....S. Emori and I. Okano 3717

Organic and Biological

Mass Spectrometry of 1-Phenylazo-2-naphthols .....K. Kobayashi, K. Kurihara, and K. Hirose 3551

The Stereoselective Reactivities of DL-Amino Acid *N*-Carboxyanhydrides for (−)-Menthol.....
.....T. Hayakawa, H. Yamamoto, Y. Murakami, Y. Yobiko, and S. Mitani 3556

The Thermal Reaction of 3-Benzoylguaiazulene and Methyl Guaiazulene-3-carboxylate ..... S. Kurokawa, M. Hashimoto, and S. Hayashi 3559

The Synthesis of 3′-Phosphate and 2′,3′-Cyclic Phosphate of 2-Amino-4-hydroxy-6-(1′,2′,3′-trihydroxypropyl)-pteridine..... K. Sugiura, H. Yamashita, and M. Goto 3564

Photolyses of Ethoxalyl Azide in Alcohols and in Hydrocarbons Reactions of Ethoxalylnitrene ..... T. Shingaki, M. Inagaki, M. Takebayashi and W. Lwowski 3567

Studies of Dithiobiurets. III. The Preparation and Properties of 3,5-Disubstituted 3*H*-1,2,4-Dithiazoles ..... I. Iwataki 3572

Solvent Effects under High Pressures. IV. A Procedure for the Estimation of Solvation in the Transition State .. Y. Kondo, M. Ohnishi, and N. Tokura 3579

Oxidative Dimerization of Pyrrole Derivatives. III. Studies on the 3-Carbonyl Substituted Pyrryl Radicals. ..... K. Tomita and N. Yoshida 3584

Sulfilimine. XVII. Syntheses and Reactions of *N*-Carbamoylsulfilimines ..... S. Oae, T. Masuda, K. Tsujihara, and N. Furukawa 3586

Studies of Acyl and Thioacyl Isocyanates. X. The Cycloaddition Reaction of Benzoyl and Thiobenzoyl Isocyanates with Benzaldazines.....O. Tsuge and S. Kanemasa 3591

Studies on Nitro Carboxylic Acids. II. Synthesis of α,β-Unsaturated β-Nitro Carboxylic Esters ..... C. Shin, Y. Yonezawa, H. Narukawa, K. Nanjo, and J. Yoshimura 3595

A Theoretical Aspect on the Mechanism of Thermal Dimerization of Cyclooctatetraene ..... H. Iwamura and K. Morio 3599

Synthetic Reactions by Complex Catalysts. XXVIII. Reaction of β-Propiolactone with Alkyl Halide Caused by Cu_2O–Isonitrile Complex .....T. Saegusa, I. Murase, M. Nakai, and Y. Ito 3604

Preparations and Reactions of *N*-Benzoyl- and *N*-Ethoxycarbonylcarbodiimides ..... O. Mitsunobu, M. Tomari, H. Morimoto, T. Sato, and M. Sudo 3607

Studies on Amino-hexoses. XV. Synthesis of Deoxy-*N*-acetylmuramic Acid .....H. Arita, K. Fukukawa, and Y. Matsushima 3611

Studies on Amino-hexoses. XVI. Synthesis of Deoxy-analogues of *N*-Acetyl-D-gulcosamine .....H. Arita, K. Fukukawa, and Y. Matsushima 3614

Studies on Aminosugars. XXXI. Synthesis of 3,4-Dideoxy-3-enosides and the Corresponding 3,4-Dideoxy-sugars..... S. Umezawa, Y. Okazaki, and T. Tsuchiya 3619

Studies on Aminosugars. XXXII. Synthesis of 3′,4′-Dideoxykanamycin B ..... S. Umezawa, H. Umewawa, Y. Okazaki, and T. Tsuchiya 3624

Crystal and Molecular Structure of ω-Amino Acids, ω-Amino Sulfonic Acids and Their Derivatives. I. The Crystal and Molecular Structure of γ-Guanidinobutyric Acid Hydrochloride and Hydrobromide ..... T. Maeda, T. Fujiwara, and K. Tomita 3628

Crystal and Molecular Structure of ω-Amino Acids, ω-Amino Sulfonic Acids and Their Derivatives. II. The Crystal and Molecular Structure of α-Form of 3-Aminopropane Sulfonic Acid, Homotaurine ..... S. Ueoka, T. Fujiwara, and K. Tomita 3634

Linear Conjugated Systems Bearing Aromatic Terminal Groups. X. Syntheses and Electronic Spectra of α,ω-Di-1-naphthyl- and α,ω-Di-2-naphthylpolyenes .....A. Yasuhara, S. Akiyama, and M. Nakagawa 3638

Optically Active Triptycenes. II. Synthesis of Optically Active 7-Substituted 2,5-Dimethoxytriptycenes.. F. Ogura, Y. Sakata, and M. Nakagawa 3646

Reaction of Organoaluminum Coordination Compound with Carbon Dioxide....S. Inoue and Y. Yokoo 3651

Studies of Organosulfur Compounds. VI. The Preparation of Carbamoyl Esters of Aromatic Dithio Acids and Their Spectra Properties.....S. Kato, T. Mitani, and M. Mizuta 3653

Studies of Acenaphthene Derivatives. XXXVI. The Thermal Cycloaddition of 2-Diazoacenaphthenone to Isocyanates..... O. Tsuge, I. Shinkai, and M. Koga 3657

Inositol Derivatives. V. Selective Benzoylation of 1,2-*O*-Cyclohexylidene-*myo*-inositol and Preparation of New *O*-*p*-Tolylsulfonyl-*myo*-inositols.....T. Suami, S. Ogawa, K. Ohashi, and S. Oki 3660

Chemical Studies on Tuberactinomycin. IV. The Chemical Structure of γ-Hydroxy-β-lysine, A New Amino Acid Isolated from Tuberactinomycin A and N .....T. Wakamiya, T. Shiba, and T. Kaneko 3668

The Structural Elucidation of Sesquiterpene Lactones from *Petasites japonicus* Maxim .....K. Naya, M. Hayashi, I. Takagi, S. Nakamura, and M. Kobayashi 3673

The Allylic Rearrangement. II. Reactions of 5,5,5-Trichloro-3-penten-2-one with Nucleophiles ..... A. Takeda, S. Tsuboi, T. Moriwaae, and E. Hirata 3685

The Acid-catalyzed Degradation of Methyl 2,3,4,5-Tetra-*O*-acetyl-α-L-xylo-2-hexulopyranosonate. A Model for the Degradation of L-*xylo*-Hexulosonic Acid.....K. Goshima, N. Maezono, and K. Tokuyama 3692

Reduction of 7-Methylenebicyclo[3.3.1]nonan-3-one and Related Compounds: Structural Investigation of the Products.....K. Kimoto, T. Imagawa, and M. Kawanisi 3698

Studies on Oxosulfonium Salts. I. Preparation and Some Physical Properties .....M. Kobayashi, K. Kamiyama, H. Minato, Y. Oishi, Y. Takada, and Y. Hattori 3703

Asymmetric Hydrogenation of the C=N Bond. A Study of the Controlling Factors on the Stereoselectivity.....T. Yoshida and K. Harada 3706

Note:

Decarboxylation of Sodium β-Phenylglycidate under Conditions of Kolbe Electrolysis .....A. Takeda, T. Moriwake, S. Torii, and T. Takaki 3718

Applied

High Modulus Carbon Fibers from Pitch Materials .....S. Ōtani, S. Watanabe, H. Ogino, K. Iijima, and T. Koitabashi 3710

Short Communications

A New Method for the Determination of the Volume Magnetic Susceptibility by NMR .....K. Hatada, Y. Terawaki, and H. Okuda 3720

Novel Polymetallic Cobalt and Zinc Complexes Formed with an Arsenic Sulphide Ligand. The X-Ray Structure Determination of Racemic Hexa-μ-dithiocacodylatotetrazincsulphide $[SZn_4\{AsS_2(CH_3)_2\}_6]$ .....D. E. Johnstone, J. E. Fergusson, and W. T. Robinson 3721

Stereoselective Reduction of Ketones with Hydrosilane-Rhodium(I) Complex Combinations .....I. Ojima, M. Nihonyanagi, and Y. Nagai 3722

A Convenient Method for the Hydrolysis of Vinyl Sulfides to Ketones .....T. Mukaiyama, K. Kamio, S. Kobayashi, and H. Takei 3723

A Convenient Method for Hydrolysis of 1,3-Dithiane Derivatives Using Cupric Chloride .....K. Narasaka, T. Sakashita, and T. Mukaiyama 3724

BULLETIN
OF THE
CHEMICAL SOCIETY
OF JAPAN

Volume 46

1973

Sumio Umezawa, Editor

Kenichi Morinaga, Assistant Editor

Editorial Board

Shigeyoshi Arai	Toschitake Iwamoto	Atsuyoshi Ohno	Hiroaki Takahashi
Yoji Arata	Hitoshi Iwasaki	Yasukazu Saito	Yoshio Takemori
Takayuki Fueno	Mitsuhiro Kinoshita	Hideki Sakurai	Shigeo Tazuke
Masao Haisa	Tsutomu Matsuda	Mizuka Sano	Jiro Tsuji
Tsujiaki Hata	Yoshio Matsunaga	Tadashi Sasaki	Takahiko Tsuyuki
Haruo Hosoya	Toshihiko Migita	Tatsuya Sekine	Ichiro Yamaguchi
Hiroshi Inagaki	Mitsuo Muramatsu	Hiroshi Suga	Masayuki Yoshida
Hakuai Inoue	Kazuyoshi Ogino	Yasuo Suzuki	

Published by

The Chemical Society of Japan

5, 1-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

© 1973 by The Chemical Society of Japan

BULLETIN
OF THE
CHEMICAL SOCIETY
OF JAPAN

Volume 46

1973

Published by
The Chemical Society of Japan
5, 1-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

CONTENTS OF VOLUME 46, 1973

No. 1

General and Physical

An Additional Formation of $CH_2{}^{80}BrBr$ *via* a Kinetic-energy-independent Process in the Highly Moderated ^{80m}Br-CH_4 Systems ..... K. Numakura, M. Saeki, and E. Tachikawa 1

The Isomerization of Propylene Oxide on Metal Oxides and Silica-Magnesia Catalysts..... Y. Okamoto, T. Imanaka, and S. Teranishi 4

An Electron Spin Resonance Study of the Steroid Conformation —6-Oxohelvolic Acid (Triketone)—..... T. Fujisawa, S. Okuda, and Y. Fujita 9

Ion-Solvent Intraction of Tetraalkylammonium Ions in Solvents of High Dielectric Constant. III. Conductance and Walden Product of Some Partially Substituted Alkylammonium Ions in *N*-Methylacetamide and *N*-Methylpropionamide at Different Temperatures ..... R. D. Singh 14

Dielectric Relaxation and Molecular Structure. III. Dielectric Relaxation Study of Some Anilines in Benzene Solutions at Different Temperatures..... J. K. Vij, I. Krishan, and K. K. Srivastava 17

A Study on the Kinetics and Mechanism of the Oxidation of Carbon Monoxide over Zinc Oxide..... J. S. Choi and B. W. Kim 21

Studies of the Molybdenum Catalysts. I. Changes in the State of the Hydrated Molybdenum Oxide Catalyst during a Reaction between Thiophene and Hydrogen.....N. Sotani and M. Hasegawa 25

The Primary Process of the Photochemical Dimerization of Carbostyril (2-Quinolone) in an Aqueous Solution ..... T. Yamamuro, N. Hata, and I. Tanaka 29

Counterion Effect in the Electron-transfer Reactions between a Tetracyanoethylene Radical Anion and Its Neutral Molecule..... M. Ogasawara, H. Takaoka, and K. Hayashi 35

Group Interactions in Polyelectrolytes. VI. Amination Kinetics of Chloromethylated Polystyrene in *N*,*N*-Dimethylformamide and Dimethyl Sulfoxide.....H. Kawabe and M. Yanagita 38

Kinetic Studies of the Dissociation and the Recombination Reaction in Aqueous Solutions of Monocarboxylic Acids by Means of Ultrasonic Absorption Measurements..... T. Sano, T. Miyazaki, N. Tatsumoto, and T. Yasunaga 43

Heat Capacity of Tetramethylsilane in the Region from 2 to 26 K and Premelting Range..... T. Shinoda, H. Enokido, Y. Maeda, H. Tomita, and Y. Mashiko 48

The Crystal Structures of Methyl Bromide and Methyl Iodide..... T. Kawaguchi, M. Hijikigawa, Y. Hayafuji, M. Ikeda, R. Fukushima, and Y. Tomiie 53

The Crystal Structures of Methylene Dibromide and Methylene Diiodide..... T. Kawaguchi, A. Wakabayashi, M. Matsumoto, T. Takeuchi, and T. Watanabé 57

The Crystal Structure of Methylene Dichloride, CH_2Cl_2..... T. Kawaguchi, K. Tanaka, T. Takeuchi, and T. Watanabé 62

The Vacuum Ultraviolet Photolysis of Liquid *n*-Hexane in the Presence of SF_6..... V. I. Pitchoozhkin, H. Yamazaki, and S. Shida 67

Luminescence from 2,3-Dimethylbutane Containing Toluene in the Solid Phase at 77°K during γ-Irradiation.. T. Miyazaki, Y. Saitake, Z. Kuri, and S. Sakai 70

Thermodynamic Properties of Some Isomeric Butyl Alcohol Mixtures..... S. Murakami and G. C. Benson 74

Mössbauer Study of the Thermal Decomposition Products of K_2FeO_4.....T. Ichida 79

The Photolysis of Cyclopentanone..... S. Tsunashima, O. Ohsawa, C. Takahashi, and S. Sato 83

Temperature Effect on Raman Intensity of Liquid Sample and Local Field Correction.....T. Fujiyama 87

Catalytic Diacetoxylation of Dihaloethylenes in the Presence of Palladium Salts..... M. Yamaji, Y. Fujiwara, R. Asano, and S. Teranishi 90

Phase Transition in the Ionic Modification of Phosphorus Pentachloride, $[PCl_4][PCl_6]$. Chlorine Nuclear Quadrupole Resonance Study.....H. Chihara and N. Nakamura 94

Heat Capacity of Solid Phosphorus Pentachloride between 4 and 150 K. Nature of the Transition at 102 K.. H. Chihara, M. Nakamura, and K. Masukane 97

The Second CMC of an Aqueous Solution of Sodium Dodecyl Sulfate. IV. Fluorescence Depolarization.... Y. Kubota, M. Kodama, and M. Miura 100

Low-frequency Lattice Vibrations and Intermolecular Forces of the 9,10-Anthraquinone Crystal..... Y. Miyazaki and M. Ito 103

Conductometric Determination of Ion-association Constants for Magnesium and Nickel Sulfates in Aqueous Solutions at Various Temperatures between 0°C and 45°C.....S. Katayama 106

^{14}N Nuclear Quadrupole Resonance of 2-Aminopyrimidine ..... H. Negita, K. Shibata, and T. Kubo 110
The Salting-out Adsorption of Isomeric Butyl Alcohols by Macroreticular Resin ..... K. Hishinuma, H. Ōki, Y. Kurokawa, and N. Yui 113
Properties of Water in Macromolecular Gels. V. Anomalous Temperature Dependence of the Nuclear Magnetic Resonance Linewidth of Water in Macromolecular Gels ..... M. Aizawa, S. Suzuki, T. Suzuki, and H. Toyama 116
Effects of Pressure on the Chemical Properties of Solid Surface. VI. The Surface Acidity of the Compressed Zinc Sulfate ..... T. Kawakami, A. Usui, and Y. Ogino 120
Effects of Pressure on the Chemical Properties of Solid Surfaces. VII. Surface Basicities of Some Compressed Carbonates and Related Compounds ..... S. Baba and Y. Ogino 127
Effects of Pressure on the Chemical Properties of Solid Surface. VIII. The Surface Acidity of the Compressed Magnesium Sulfate ..... T. Kawakami, H. Banba, and Y. Ogino 133
ESR Studeis of the Negative Ions of Biphenyl Derivatives. IV. Conformation of 4,4'-Polymethylenebiphenyl Anion Radicals ..... K. Ishizu, F. Nemoto, H. Hasegawa, K. Yamamoto, and M. Nakazaki 140
Notes:
The Determination of the Iodine Affinity of Poly(vinyl acetate) ..... S. Hayashi, M. Kishibe, and N. Hojo 318
Phase Transition and Spin-exchange Interaction in Ion Radical Salts. Some Information Derived from ESR Measurements ..... Y. Iida 320
A Study of Catalytic Partial Oxidation of Hydrocarbons. XIII. The Effect of Bi_2O_3 Content in MoO_3-Bi_2O_3-P_2O_5 Catalysts on the Dehydration of Isopropyl Alcohol ..... M. Ai and S. Suzuki 321
The Kinetics of Proton-transfer Reaction in an Aqueous Solution of *n*-Butylamine by Means of Ultrasonic Absorption ..... S. Nishikawa, T. Nakamoto, and T. Yasunaga 324
Photochromism of *N*-3-Pyridylsydnone ..... A. Mitsui and N. Ebara 327
The Migration of the Exciton in the Radiolysis of Alkanes ..... T. Miyazaki 329

Analytical and Inorganic

Thermal Decomposition Reactions of Metal Oxalato Complexes in the Solid State. II. Evolved Gas Analyses of Metal Oxalato Complexes ..... K. Nagase 144
Polarographic Studies of the Anodic Oxidation of Mercury. I. Anodic Waves of Ammonia and Several Amines in *N,N*-Dimethylformamide ..... Y. Matsui, Y. Kurosaki, and Y. Date 147
The Synthesis of Crystalline Rare Earth Carbonates ..... K. Nagashima, H. Wakita, and A, Mochizuki 152
The Viscosities of Aqueous Solutions Containing Metal Complexes. III. Iminodiacetato and Methyliminodiacetato Complexes ..... K. Mizutani and M. Yasuda 157
The Absolute Configuration of the $(-)_{589}$-Oxalatobis(ethylenediamine)cobalt(III) Ion as Determined by X-Ray Structure Analysis ..... T. Aoki, K. Matsumoto, S. Ooi, and H. Kuroya 159
Studies of Actinoid Elements. V. The Determination of the Np(V)/Np(IV) Ratio in an Aqueous Solution by Means of the Partition Method ..... A. Ohyoshi and T. Kawamura 162
The Ultraviolet Absorption Spectra and Hydrolysis of Bis(acetylacetonato)nickel(II) in Dichloromethane ..... K. Isobe, Y. Nakamura, and S. Kawaguchi 166
Derivatographic Studies on Transition Metal Complexes. IX. Thermal CN-Bridging Reaction of Double Complex Salts in Solid Phase ..... R. Tsuchiya, S. Nakagawa, A. Uehara, and E. Kyuno 169
Polarographic Studies of Some Lanthanoids(III) in *N,N*-Dimethylacetamide ..... M. Aihara and S. Misumi 175
Racemization Reactions of Cobalt (III) Complexes of Ethylenediaminetetraacetate and Trimethylenediaminetetraacetate ..... H. Ogino, M. Takahashi, and N. Tanaka 178
Studies on Nitrogen-Phosphorus Compounds. XXII. The Synthesis and Properties of Phosphoric Aniline Diamide ..... E. Kobayashi 183
The Stability of Fused Rings in Metal Chelates. IX. Copper(II) and Nickel(II) Complexes of Schiff Bases Derived from Salicylaldehyde and Dipeptides Containing Glycine and/or β-Alanine ..... Y. Nakao and A. Nakahara 187
Notes:
The Effect of the Addition of γ-FeOOH Nuclei at the Initial Stage of Oxidation on the Formation of γ-FeOOH ..... M. Kiyama, N. Jikuhara, and T. Takada 323
The d→d Absorption Spectra of Potassium Tris(8-quinolinolato)nickelate(II) in Methanol–Chloroform Mixtures ..... Y. Yamamoto 331

Organic and Biological

Sterically Controlled Syntheses of Optically Active Organic Compounds. XVII. Asymmetric Syntheses of Amino Acids by Addition of Benzoyl Cyanide to the Azomethine Compounds ..... K. Harada and T. Okawara 191
The Tautomeric Equilibria of 4-(Dialkylamino)azobenzene Derivatives ..... S. Yamamoto, N. Nishimura, and S. Hasegawa 194
Synthesis and Halochromism of 4- and 6-Styryl-2-aminotropones ..... K. Imafuku and H. Matsumura 199

The Estimation of the Electronic Effects of Cyclopropyl and 2,2-Dichlorocyclopropyl Groups ..... Y. Kusuyama and Y. Ikeda 204
Polyether-amides from the Condensation of ω-(*p*-Carboxyphenoxy)alkanoic Acids with Aliphatic Diamines.. T. Kito, T. Fujimoto, R. Mikami, and I. Hirao 209
Peptide Synthesis *via* *N*-Acylated Aziridinone. I. The Synthesis of 3-Substituted-1-benzyloxycarbonylaziridin-2-ones and Related Compounds ..... M. Miyoshi 212
Syntheses of Isoprenoids by Telomerizations. VIII. Anionic Telomerizations of Isoprene with Secondary Amines ..... K. Takabe, T. Katagiri, and J. Tanaka 218
Syntheses of Isoprenoids by Telomerizations. IX. Stereosectivity of Telomers and the Effect of Telogens in Anionic Telomerizations Using Secondary Amines ..... K. Takabe, T. Katagiri, and J. Tanaka 222
Synthesis and Biological Activity of Peptides Related to Eledoisin. I. Hexapeptide Amides Containing α-Hydroxy Acids ..... H. Sugano, K. Higaki, and M. Miyoshi 226
Synthesis and Biological Activity of Peptides Related to Eledoisin. II. Hexapeptide Amides Containing *N*-Methylamino Acids ..... H. Sugano, K. Higaki, and M. Miyoshi 231
Photochemical Reactions of Aromatic Compounds. XI. The Photochemical Cycloaddition of Vinyl Ethers to α-Naphthonitrile ..... C. Pac, T. Sugioka, K. Mizuno, and H. Sakurai 238
Studies of Organosulfur Compounds. IX. The Preparation of Organometal IVb Esters of Aromatic Thio Acid ..... S. Kato, W. Akada, M. Mizuta, and Y. Ishii 244
The Polymerization of Vinyl Monomers in the Presence of Surface Active Agents. III. The Rate of the Polymerization of Styrene ..... T. Asahara, M. Senō, S. Shiraishi, and Y. Arita 249
The Reaction Mechanism of 2-Dimethoxymethyl-3-methoxypropiononitrile with Acetamidine. III. The Reaction with Benzamidine ..... T. Nishino, M. Kiyokawa, Y. Miichi, and K. Tokuyama 253
Intramolecular Intraction between the Hydroxyl Group and the Oxirane Ring.... M. Ōki and T. Murayama 259
Macro Rings. V. Syntheses of Tetraoxaparacyclophanes Containing Two Biphenyl Nuclei ..... J. Nishikido, T. Inazu, and T. Yoshino 263
Syntheses of L-Threose and Methyl Di-*O*-acetyl-L-threuronate from *dextro*-Tartaric Acid ..... G. Nakaminami, H. Edo, and M. Nakagawa 266
Hetera-*p*-carbophanes. I. Hetera-*p*-carbophanes Containing Two Amide Groups.. K. Sakamoto and M. Ōki 270
The Peracid-oxidation of Tetraphenylallene: The Formation of Hydroxyindanone and Its Oxidative Transformation ..... A. Oku, K. Shimada, and F. Mashio 275
Selective Homogeneous Hydrogenation of 3-Oxo-1,4-diene Steroids. II. Effects of Basic Additives and of *para* Substituents on the Hydrogenation with Dichlorotris(triphenylphosphine)ruthenium ..... S. Nishimura, T. Ichino, A. Akimoto, and K. Tsuneda 279
Compounds Related to Acridine. X. The Reaction of 9-Ethynylacridine with Active Methylene Compounds.. O. Tsuge and A. Torii 283
Studies of Enamines. II. The Reaction of 4-(1-Piperidyl)- and 4-(1-Pyrrolidinyl)-3-penten-2-ones with Aryl Isocyanates ..... O. Tsuge and A. Inaba 286
Preparation of *p*-Nitrophenyl 2-*O*-acetyl-β-D-glucopyranoside and *N*-Acetyl-β-D-glucosaminidase Activity toward It. (Essential Requirement of 2-Acetamide Group of Substrate for *N*-Acetyl-β-D-glucosaminidase Hydrolysis) ..... K. Yamamoto 290
Studies on Nitrile Salts. I. Dimerization of Nitriles Having α-Hydrogen in the Presence of Hydrogen Chloride ..... S. Yanagida, T. Fujita, M. Ohoka, I. Katagiri, and S. Komori 292
Studies on Nitrile Salts. II. A Facile One-step Synthesis of the Pyrimidine Nucleus ..... S. Yanagida, T. Fujita, M. Ohoka, R. Kumagai, and S. Komori 299
Studies on Nitrile Salts. III. Dimerization of Nitriles Having No α-Hydrogen with Hydrogen Chloride .... S. Yanagida, T. Fujita, M. Ohoka, I. Katagiri, M. Miyake, and S. Komori 303
Studies on Nitrile Salts. IV. Trimerization of Nitriles to 1,3,5-Triazines by the Combined Catalyst PCl_5-HCl.. S. Yanagida, M. Yokoe, I. Katagiri, M. Ohoka, and S. Komori 306
The Alkylation of 3,5-Dimethylisoxazole ..... C. Kashima, S. Tobe, N. Sugiyama, and M. Yamamoto 310

Notes:

The Reductive Coupling Reactions of Some Chloromethylbenzene Derivatives with Iron(II) Complexes. II. Reduction by Anhydrous Iron(II) Chloride and Lithium Chloroferrate(II) ..... K. Onuma, J. Yamashita, and H. Hashimoto 333
A Fluorescence Study of a β-Structural 1-Dimethylaminonaphthalene-5-sulfonyl Poly-L-lysine Conjugate ..... T. Iio 335
The Synthetic Reactions of Aliphatic Nitro Compounds. VII. The Synthesis of α-Amino Acids from the Nitroacetic Ester ..... E. Kaji and S. Zen 337
Reaction of Troponoid with Ylide. IV. A Conversion of Tropone into Cyclooctatrienone ..... Y. Sugimura, N. Soma, and Y. Kishida 339

Applied

Carbon Products Prepared from Variant Pitch Materials. VIII. The Preparation of Isotropic Pitch Carbon with a High Density ..... S. Otani and A. Oya 314

No. 2

General and Physical

X-Ray Photoelectron Spectroscopic Study for the Reaction of Evaporated Iron with O_2 and H_2O..... K. Kishi and S. Ikeda 341

Energetic Reactions of ^{80}Br Activated by (I. T.) Process in C_3H_8–C_2H_6 and C_2H_5–CH_3Br Systems ..... K. Numakura and E. Tachikawa 346

A New Catalyst for Ethylene Polymerization Containing Nickel Oxide .....K. Maruya and A. Ozaki 351

Generalized Method for Calculating Löwdin Orbitals .....K. Suzuki, S. Maruyama, and K. Araki 355

The Polymerization of α-Naphthylmethylvinylether and 3-Pyrenylmethylvinylether and Electrical Conductivity of Their Polymers.....S. Yoshimoto, K. Okamoto, H. Hirata, S. Kusabayashi and H. Mikawa 358

The Viscosities of Aqueous Sodium Alkylsulfate and Alkyltrimethylammonium Bromide Solutions..... .....M. Tanaka, S. Kaneshina, W. Nishimoto, and H. Takabatake 364

Electrochemiluminescence of 9,10-Dichloroanthracene at Low Temperatures..... ..... T. Matsumoto, M. Sato, and S. Hirayama 369

Photoelectron Spectra and Orbital Structures of Higher Alkyl Chlorides, Bromides and Iodides..... .....K. Kimura, S. Katsumata, Y. Achiba, H. Matsumoto, and S. Nagakura 373

The Polarized Absorption Spectra of Some β-Substituted Anthraquinones..... .....H. Inoue, T. Hoshi, J. Yoshino, and Y. Tanizaki 380

Molecular Structure of *N*-Methylacetamide as Studied by Gas Electron Diffraction .... M. Kitano, T. Fukuyama, and K. Kuchitsu 384

The Distribution of 2-Thenoyltrifluoroacetone between Several Organic Solvents and an Aqueous Solution and Its Extraction of Sodium(I) into Methyl Isobutyl Ketone.....T. Sekine, Y. Takahashi, and N. Ihara 388

The Calculation of the π-Electron Orbital Energies of the Allyl Cation, Butadiene, and Cyclic Polyenes by Means of Green's Function Method .....K. Shimada, S. Okido, and O. Tanimoto 392

Solubility of Alkyl Bromides in Aqueous Polymer Solutions .....T. Okubo, S.-X. Chen, and N. Ise 397

Diffusion Coefficients of Bolaform Electrolytes in Aqueous Solution .....H. Uedaira 401

The Molecular Structure of Antimony Trichloride as Determined by Gas-electron Diffraction..... .....S. Konaka and M. Kimura 404

Electron Diffraction Study of Dimethylmercury..... ..... K. Kashiwabara, S. Konaka, T. Iijima, and M. Kimura 407

Electron Diffraction Investigation of Gaseous Mercury(II) Chloride..... ..... K. Kashiwabara, S. Konaka, and M. Kimura 410

The Molecular Structure and Force Constants of Antimony Tribromide as Determined by Gas-phase Electron Diffraction .....S. Konaka and M. Kimura 413

The Electronic Absorption Spectra and Electronic Structures of Aromatic Azides, Nitrenes, and Diazonium Ions ..... H. Kashiwagi, S. Iwata, T. Yamaoka, and S. Nagakura 417

The Electronic States of Tetracyanoethylene and Its Anion Radical as Studied by Their Infrared Spectra..... ..... Y. Iida 423

Comparison of the Conductance Equations of Fuoss-Onsager, Fuoss-Hsia and Pitts with the Data of Bis(2,9-dimethyl-1,10-phenanthroline)Cu(I) Perchlorate .....K. Miyoshi 426

Anodic Oxidation of Benzoic Acid in Nitriles....Y. Matsuda, K. Kimura, C. Iwakura, and H. Tamura 430

The Molecular and Crystal Structure of the *p*-Bromobenzoate of an Unusual Birch Reduction Product ....A. Furusaki, N. Hamanaka, and T. Matsumoto 434

Notes:

Topochemical Studies. II. The Crystal and Molecular Structure of the Second Polymorph of Chalcone, Ph-CH=CH-CO-Ph.....K. Ohkura, S. Kashino, and M. Haisa 627

The Charge-transfer Complexes of Metal Chelates of 8-Quinolinol with 7,7,8,8-Tetracyanoquinodimethane .... S. Koizumi and Y. Iida 629

Ionization of Aromatic Molecules *via* σ-Complex with Aluminum Chloride in Solid Phase..... ..... H. Sato and Y. Aoyama 631

^{18}O Tracer Studies of Catalytic Oxidations of Olefin over Transition Metal or Metal Oxide Catalysts. II. Oxidation of Propylene to Acrolein over Pd-Carbon Catalyst ....Y. Moro-oka, T. Ohhata, Y. Takita, and A. Ozaki 681

The Phase Transitions of the Anion Radical Salts of $[(C_6H_5)_3PCH_3]_{1-x}^{+}[(C_6H_5)_3AsCH_3]_x^{+}(TCNQ)_2^{-}$, $(0 \leq x \leq 1)$, as Studied by the ESR Measurements .....Y. Suzuki and Y. Iida 683

The Molecular Froms of the Rotational Isomers of Ethylmethylsilane..... .....M. Hayashi, K. Ohno, and H. Murata 684

Analytical and Inorganic

The Coordiation Bonding and Stability of the 1:1 Complexes of Copper(II) with Various Bidentate Ligands in Aqueous-methanolic Solutions ..... H. Yokoi, M. Otagiri, and T. Isobe 442
ESR Studies of Dimer Formation by the β-Diketone Chelate Complexes of Copper(II) in Toluene..... H. Yokoi and T. Isobe 447
Rocker-type DTA Apparatus for Fluid Samples..... S. Tanaka 452
Kinetics of the Aquation of Iron(III) Monophenolate Complexes; Absence of the Acid-dependent Path..... K. Nakamura, T. Tsuchida, A. Yamagishi, and M. Fujimoto 456
Polarographic Studies of the Anodic Oxidation of Mercury. II. The Anodic Adsorption Wave of Ethylamine in *N,N*-Dimethylformamide ..... Y. Matsui and Y. Date 460
Polarographic Studies of the Anodic Oxidation of Mercury. III. The Adsorption of the Mercury(II) Complexes of Ammonia and Alkylamines on the Mercury Electrode Surface..... Y. Matsui, H. Takaya, and Y. Date 464
NMR Study of Amino Acids and Their Derivatives. V. Structures and Formation Constants of Zinc-L-Aspartic Acid Complexes in Aqueous Solution..H. Ishizuka, T. Yamamoto, Y. Arata, and S. Fujiwara 468
Mechanisms and Kinetics of the Decomposition of Trioxalatocobaltate(III) in Aqueous Sulfuric Acid..... M. Kimura and T. Sato 471
Preparation and Characterization of Cobalt(III) Complexes with *N*-Carboxylate Derivatives of L-Prolinate.... K. Okamoto, J. Hidaka, and Y. Shimura 475
Kinetics and Mechanism of Formation of Monothiocyanato and Mononitrilotriacetato Complexes of Iron(III) ..... S. Funahashi, S. Adachi, and M. Tanaka 479
Nickel(II), Cobalt(II), Palladium(II) and Beryllium(II) Chelates of 2,4,6-Heptanetrione ..... F. Sagara, H. Kobayashi, and K. Ueno 484
Calmagite: The Formation Constants of Zinc(II) Chelates and Its Use as a Metal Indicator..... G. Nakagawa, H. Wada, and Y. Fujita 489
Polarographic Reductions of Alkaline Earth Metal Ions in Hexamethylphosphoramide. Effect of Cation of the Supporting Electrolyte ..... K. Izutsu, S. Sakura, and T. Fujinaga 493
Selective Activation of Methylene or Methine Groups in Coordinated Dipeptide Schiff Bases..... O. Uyama, Y. Nakao, and A. Nakahara 496
Spectrophotometric Study on the Extraction of the Ternary Complex Composed of Vanadium(V), 8-Hydroxyquinoline-5-sulfonic Acid and Zephiramine..... T. Kambara and M. Sugawara 500
Kinetic Studies of the Nickel Maleate Complex Formation in Solution by the Pressure-jump Method..... S. Harada and T. Yasunaga 502

Notes:

Effect of Substituents on the Keto-Enol Equilibrium of Alkyl-substituted β-Diketones ..... H. Koshimura, J. Saito, and T. Okubo 632
Infrared Analysis of Copolymers. II. The Sequence Distribution of Methyl Acrylate Units in Methyl Acrylate-Styrene Copolymers..... N. Ōi, K. Moriguchi, H. Shimada, and F. Hashimoto 634
Magnetic Circular Dichroism of $Cu(acac)_2$, $Fe(acac)_3$, and $Co(acac)_3$..... H. Katô and J. Gohda 636
The Design and Performance of a Long-path "Multi-flame" Burner for Atomic Absorption Spectrophotometry.. T. Nakahara, H. Date, M. Munemori, and S. Musha 637
The Atomic Absorption Spectrophotometric Determination of Zinc in Premixed Inert Gas(Entrained Air)-Hydrogen Flame and the Measurement of the Flame Temperature..... T. Nakahara, M. Munemori, and S. Musha 639
The Addition of Nitrosyl Chloride to Nickel(0) Complexes. The Preparation of Nitrosyl Nickel Complexes .. M. Hidai, M. Kokura, and Y. Uchida 686

Organic and Biological

Study on Oxazolopyrimidines. VI. Formation of 3-Substituted Xanthines *via* 7(6*H*)-Iminooxazolopyrimidines ..... Y. Ohtsuka 506
The Reaction of Propargyl Compounds with Carbon Monoxide and Water in the Presence of Iron Carbonyl Catalyst ..... F. Wada and T. Matsuda 510
Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel Catalyst. XXV. Contributions of pH-Adjusting Reagents in the Asymmetric Hydrogenation ..T. Tanabe, K. Okuda, and Y. Izumi 514
Aldol Condensations of Aldehydes over Disodium Phthalocyanine..... H. Inoue, K. Kunikawa, and E. Imoto 518
The Reactions of Stannic Halides with Some Triphenylphosphine, -arsine and -stibine-substituted Iron Carbonyls ..... T. Takano 522
The Cobalt Carbonyl-catalyzed Hydroesterification of Butadiene with Carbon Monoxide and Methanol..... A. Matsuda 524
The Reaction of β-Amino α,β-Unsaturated Esters with Amines ..... Y. Yokoyama and A. Tai 530

Reaction of *O,O*-Dialkyl Dithiophosphoric Acid. III. Reductive Cleavage Reactions of Nitrogen-Nitrogen Bond by *O,O*-Diethyl Dithiophosphoric Acid.....S. Oae, N. Tsujimoto, and A. Nakanishi 535
Chemistry of Cyanoacetylenes. XIV. One-step Synthesis of Some Ethynyl Heterocycles and Their Reactions with Diazomethane .....T. Sasaki, S. Eguchi, and M. Sugimoto 540
Substituent Effects on Dissociation Constants of 4- and 6-Styryl-2-aminotropones .....K. Imafuku and H. Matsumura 544
Solvent Effect on the Free Radical Phenylation with Phenylazotriphenylmethane.....M. Kobayashi, H. Minato, and N. Watanabe 546
Synthetic Studies by the Use of Carbonates. II. An Easy Method of Preparing Cyclic Carbonates of Polyhydroxy Compounds by Transesterification with Ethylene Carbonate.....H. Komura, T. Yoshino, and Y. Ishido 550
Synthetic Studies by the Use of Carbonates. III. The Condensation Reactions of Ethylene Carbonate with a Variety of Phenols Catalyzed by Lithium Hydride or Tetraethylammonium Halides..... T. Yoshino, S. Inaba, Y. Ishido 553
On the Mechanism of the Acid Catalysis and New Activating Agents of the Fusion Reaction of an Acylated Sugar with a Purine Derivative .....M. Sekiya, T. Yoshino, H. Tanaka, and Y. Ishido 556
The Reversible Acylation of β-Diketone with Acyl Chloride in the Presence of Aluminum Chloride.....K. Matsui, M. Motoi, and T. Nojiri 562
The Transacylation between β-Diketone and Ester in the Presence of Aluminum Chloride..... K. Matsui and M. Motoi 565
Putranjic Acid. Synthesis and Stereostructure ..... R. Aoyagi, Y. Moriyama, T. Tsuyuki, and T. Takahashi 569
Syntheses of New Arginine Derivatives as a Substrate for Trypsin or Papain.....N. Nishi and J. Noguchi 572
New Syntheses of Maculosidine and Pteleine .....T. Sekiba 577
The Reaction of Methyl 2-Dimethoxymethyl-3-methoxypropionate with Amidines.....T. Nishino, Y. Miichi, and K. Tokuyama 580
The Structure of Shikokianidin, A Minor Component of *Isodon shikokianus* Hara ..... T. Isobe, T. Kamikawa, I. Kubo, and T. Kubota 583
The Jacobsen Reaction of Iodopseudocumenes and Related Compounds. Orientation in the Iodination of Halopseudocumenes.....H. Suzuki and T. Sugiyama 586
Syntheses of Diiodo and Triiodo Derivatives of 1,2,3-Trimethylbenzene *(Hemimellitene)* and 1,2,4-Trimethylbenzene *(Pseudocumene)*. A Convenient Use of Polyiodo Derivatives for the Characterization of Polyalkylbenzenes and Their Derivatives .....H. Suzuki 589
Studies on Amino-hexoses. XVII. Identification of the Deamination Products from D-Glucosaminitol ..... T. Bando and Y. Matsushima 593
The Photo-induced Addition of Acetic Acid to Cyclohexene Derivatives..... T.-Y. Leong, T. Imagawa, K. Kimoto, and M. Kawanishi 596
Dimerization of Isoprene by Palladium–Diphosphine Complex Catalyst ..... K. Takahashi, G. Hata, and A. Miyake 600
The Syntheses of Trimethyl *dl*-3-(Methoxycarbonylmethyl)-1,2,4-cyclopentanetricarboxylates..... S. Ito and Y. Hirata 603
Optically Active Triptycenes. IV. Synthesis of Optically Active 2- or 5-Substituted 7-Carboxytriptycenes .. ..Y. Sakata, F. Ogura, and M. Nakagawa 611
Optically Active Triptycenes. V. Synthesis, Optical Resolution and Absolute Configuration of 2,7-Disubstituted Triptycenes .....M. Kuritani, Y. Sakata, F. Ogura, and M. Nakagawa 605
Tubercidin. Its Conversion into 5'-Deoxytubercidin.....K. Anzai and M. Matsui 618

Notes:

Sesquiterpenoids of *Parabenzoin praecox* ..... K. Ohara, Y. Ohta, and Y. Hirose 641
The Pyrolysis of Dialkyl α-Acyloxyphosphonates .....Y. Okamoto and H. Sakurai 643
The Synthesis of the Derivatives of Silacyclopentanol and Silacyclopentylamine..... T. Araki, D. Terunuma, F. Kato, H. Haneda, and A. Iino 644
Aromatic Nitration. II. Competitive Nitration of Toluene and Benzene in Oragnic Solvents..... S. Sekiguchi, A. Hirose, S. Kato, and K. Matsui 646
The Reaction of Elemental Sulfur with Organic Compounds. V. Reactions of Optically Active Sulfoximine with Elemental Sulfur and with Diphenyl Disulfide .....S. Oae, Y. Tsuchida, and N. Furukawa 648
The Reaction of Elemental Sulfur with Organic Compounds. VI. ^{35}S-Tracer Study of Aromatic Displacement Reaction of Thianthrene, Phenoxathiin, Dibenzothiophene and Their Oxidation Compounds by Sulfur .....S. Oae, S. Makino, and Y. Tsuchida 650
Optically Active Triptycenes. III. Synthesis of Optically Active 2-Methoxy-5-acyloxy- and 2-Acyloxy-5-methoxy-7-methoxycarbonyltriptycenes .....F. Ogura and M. Nakagawa 651
The Synthesis of [6.0.6.0]Paracyclophane .....R. Nagano, J. Nishikido, T. Inazu, and T. Yoshino 653
Organic Syntheses by Means of Noble Metal Compounds. XLIX. Oxidation of 3-Hexenedioate to 2,4-Hexadienedioate Catalyzed by Palladium Chloride and Copper(II) Chloride....T. Susuki and J. Tsuji 655

Convenient Preparation of Methyl 2-Acetamido-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside..... K. YAMAMOTO and T. HAYASHI 656
The Preparation of *p*-Nitrophenyl 2-Acetamido-3-*O*-methyl-2-deoxy-β-D-glucopyranoside .....K. YAMAMOTO 658
Preparation of Hydroquinone Derivatives .....S. IWABUCHI, M. KOBAYASHI, K. SUZUKI, and K. KOJIMA 659
Studies of Saturated Heterocyclic Compounds. Preparations and PMR Spectra of *cis* and *trans* 2,5-Disubstituted 1,3-Dioxolan-4-ones .....Y. ASABE, S. TAKITANI, and Y. TSUZUKI 661
Aromatic Substitution of Olefins. XIX. Reaction of Five-membered Heterocyclic Aromatic Commpounds with Styrene.....R. ASANO, I. MORITANI, Y. FUJIWARA, and S. TERANISHI 663
The Ferrocenylation of Styrenes-β,β-d_2 with the Ferrocenylpalladium Compound..... A. KASAHARA and T. IZUMI 665
The Reaction of Acyl-substituted Sulfonium and Pyridinium Ylides with Diphenylthiirene Dioxide.....Y. HAYASI, H. NAKAMURA, and H. NOZAKI 667
A Convenient Method of Synthesizing Protected α-Amino-γ-butyrolactones....H. SUGANO and M. MIYOSHI 669
Studies on Nitro Sugars. IV. The Synthesis of Benzyl 2-Deoxy-3,4-*O*-isopropylidene-2-nitro-β-D-arabino- and ribo-pyranoside .....T. TAKAMOTO, M. OHKI, R. SUDOH, and T. NAKAGAWA 670
The Absolute Configulation of Dimethyl (−)-*erythro*-2-Ethyl-3-methylglutarate .....S. ITO and Y. HIRATA 672
The Reaction of 7-Methylenebicyclo[3.3.1]nonan-3-one and Bicyclo[3.3.1]nonane-3,7-dione with Several Nucleophiles .....R. YAMAGUCHI, K. H. YANG, and M. KAWANISI 673
N-Isopropylidene- and *N*-*sec*-Butylideneanilines. I. Preparation and Characterization.....M. TSUCHIMOTO, S. NISHIMURA, and H. IWAMURA 675
Reactions of Hydrazinium Thiocyanate with Aldehydes and Ketones....I. ARAI, S. ABE, and A. HAGITANI 677
Kinetic Studies of the Acid-catalyzed Amination of *p*-Nitrosoanisole with Anilines in Methanol.....Y. FURUYA and K. TERAOKA 679
Reaction of Sulfenyl Chlorides with Sulfides. IV. The Reaction with 1-Phenylvinyl Sulfides ..... M. ŌKI and K. KOBAYASHI 687
On the Cleavage of 2,4-Dibromo-5-methylanisole .....A. ADACHI 688
Synthetic Photochemistry. II. The Cycloaddition Reaction of Dehydroacetic Acid with Olefins..... H. TAKESHITA, R. KIKUCHI, and Y. SHOJI 690
One-step Synthesis of Putranjivic Acid from Friedelin.....R. AOYAGI, T. TSUYUKI, and T. TAKAHASHI 692
Aromatic Nulceophilic Substitution. I. Preparation of Spiro Meisenheimer Complexes of Arenes..... S. SEKIGUCHI and T. SHIOJIMA 693
The Photochemical Reactions of Tetrahydrofuran and Tetrahydrothiophene with Sulfur Dioxide.....H. TAKEUCHI, T. NAGAI, and N. TOKURA 695
Michael Cycloaddition of 2-Phenylethene-1-sulfonamide with Carbon Disulfide..... K. HASEGAWA, T. SASAKI, and S. HIROOKA 696
The Decomposition Product of Ethyl 2-Cyano-3-mercapto-3-methylthioacrylate..M. YOKOYAMA and S. HONGO 699

Applied

Structural Effects on the Properties of Nonionic Surfactants. II. Acetal Type Homogeneous Nonionics Having Polyoxyethylene Chains Terminated with Methoxyl Group .....H. TAKAHASHI and T. KUWAMURA 623

No. 3

General and Physical

Electron Spin Resonance Study on Photoinduced Changes of the Radicals Produced in Methyl Isocyanate Solid Irradiated with γ-Rays.....M. FUJIWARA, N. TAMURA, and H. HIRAI 701
The Carbon-13 Chemical Shift of *n*-Butane .....I. ANDO and A. NISHIOKA 706
Automatic Recording of Liquid Penetration through Filter Paper and and Wetting Behavior of Liquids..... A. NAKAMURA, T. SEIMIYA, and T. SASAKI 710
Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. IV. Picric Acid Complexes with Benzidine and Its Derivatives .....G. SAITO and Y. MATSUNAGA 714
The Cation-radical Salts Derived from Benzo- and Dibenzo-phenothiazines....Y. MATSUNAGA and Y. SUZUKI 719
The Crystal Structure of Di-π-allyl(dihydropentalenylene)dinickel..... Y. KITANO, M. KASHIWAGI, and Y. KINOSHITA 723
Electron-spin-resonance Studies of the Formation and Properties of the Trimeric Vanadyl Dibutylphosphate Complex.....M. SATO, T. TAKAYANAGI, Y. FUJITA, and T. KWAN 727

The Effects of Ion-pair Formation on the ESR Spectra of the Anion Radicals of 4-Nitropyridine *N*-Oxide and 4-Nitropyridine ..... Y. Kawamura (née Ōishi), K. Nishikida, and T. Kubota 737

The Bromine Nuclear Quadrupole Resonance of Two Modifications of Indium Tribromide ..... T. Okuda, Y. Furukawa, H. Shigemoto, and H. Negita 741

Photochemistry of Acridines. XIX. Photoreduction of Acridine in Mixed Solvents ..... M. Hoshino and M. Koizumi 745

Interaction between Excited β-Naphthol and Pyridine. Hydrogen-bond Formation in S* and H-Transfer Reaction in T ..... K. Kikuchi, H. Watarai, and M. Koizumi 749

The Applicability of the Theory of R.A. Marcus to the Electron-transfer Reactions between Polycyclic Aromatic Hydrocarbons and Their Anion Radicals ..... K. Suga and S. Aoyagui 755

The Enthalpies of Binary Mixtures of Chalcogen Elements ..... T. Maekawa, T. Yokokawa, and K. Niwa 761

The Reflection Spectra of Würster's Salts ..... Y. Oohashi and T. Sakata 765

The Preparation and Crystal Structure of Ternary Rare Earth Borides, RCo_3B_2 ..... K. Niihara and S. Yajima 770

Theoretical Calculations and Assignments of Electronic Absorption Spectra of Cation Radicals of *o*-, *m*-, and *p*-Disubstituted Benzenes Having Amino and Hydroxyl Groups ..... S. Katsumata and K. Kimura 775

The Magnetic Properties of Some Iminoxyl Polyradicals. IV. The Paramagnetic Susceptibilities of the Diluted Crystals of the TEMPAD Biradical ..... A. Nakajima 779

The Infrared Spectra of α-Chlorinated Acetamides ..... Y. Mido 782

The Coupled Perturbed Hartree-Fock Calculations of the Magnetic Susceptibility for Some Nonbenzenoid Aromatic Hydrocarbons ..... Y. Mikami, S. Miyai, and T. Nakajima 787

Light Scattering Studies on the Thermal Denaturation of Bovine Serum Albumin ..... M. Nakagaki and Y. Sano 791

The Molecular Vibrations and the Rotational Isomerism of (Chloromethyl)methylsilane ..... M. Hayashi, K. Ohno, and H. Murata 797

The Crystal and Molecular Structure of *p*-Hydroxybenzoic Acid Monohydrate ..... K. Fukuyama, K. Ohkura, S. Kashino, and M. Haisa 804

The Dependence of the Electron-transfer Rates of Aromatic Hydrocarbon Anion Radicals upon the Molecular Radii of the Reactants ..... K. Suga, S. Ishikawa, and S. Aoyagui 808

Isothermal Decay of Trapped Electron in Irradiated 2-Methyltetrahydrofuran Glass ..... T. Ichikawa, H. Yoshida, and K. Hayashi 812

Kinetics and Mechanism of the Reaction of Iodine Monochloride with Some Alcohols ..... C. R. Das and A. N. Bose 818

Electronic Structures and Spectra of Pyridinyl Hetero Diradicals. Charge-transfer Interaction between Two Different Radicals ..... M. Itoh 821

Spin Trapping by Use of Nitroso-Compounds. VII. β-Fluorine Splitting Constants in Nitroxides ..... S. Terabe and R. Konaka 825

Notes:

The Distribution of Benzene and Its Monosubstituted Derivatives between Hexane and Water ..... T. Sekine, Y. Suzuki, and N. Ihara 995

Rise Times of Triplet-Triplet Absorptions of Some Aromatic Hydrocarbons ..... N. Mikami, Y. Udagawa, I. Hayashi, K. Kaya, and M. Ito 997

Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. V. Tryptophan Picrate ..... Y. Matsunaga 998

The Fractionation of Tritiated Water in Several Hydrated Chlorides ..... H. Tanaka, M. Tanga, and H. Negita 1000

A CNDO Treatment of the Structures of the Grignard Reagents ..... H. Kato and S. Tsuruya 1001

The Formation of β-Glycine in the Thermal Decomposition of a Solid Complex of Aminomalonic Acid with Glycine ..... J. Nishijo and T. Kinugasa 1003

Analytical and Inorganic

Effect of Halogens on the Inoization of Alkali Metals in the Hydrogen Flame Ionization Detector for Ultra-Micro Analysis of Alkali and Alkaline Earth Metals ..... M. Yamada, S. Suzuki, and S. Araki 830

The Ion-exchange Behavior of the Ammonium Ion on Crystalline Zirconium Phosphate ..... Y. Hasegawa and H. Aoki 836

Estimation of the Thermal Yields in the Reaction with Methanes of ^{80}Br Activated by (n, γ) Process ..... M. Saeki and E. Tachikawa 839

Synthesis and Metal Chelate Stability of *N,N'*-Ethylenebis(aminomalonic) Acid ..... M. Mashihara, T. Ando, and I. Murase 844

Photochromism of Thallium Chloride ..... S. Sakka and J. D. Mackenzie 848

Note:

Ion-exchange Equilibria on a Crystalline Zirconium Phosphate Exchanger ..... H. Sekino and I. Tomita 1005

Organic and Biological

Detosylation of *N*-Tosyl Amino Acids and Peptides by Electrolytic Reduction ..... T. Iwasaki, K. Matsumoto, M. Matsuoka, T. Takahashi, and K. Okumura 852

Liquid-phase Oxidation Catalyzed by Cu(II)-Cl System. I. Oxidation of Cyclohexene ..... S. Imamura, T. Banba, and Y. Takegami 856

Studies of Organo Sulfur Compounds. II. The Preparation and Reactions of Benzoyl Benzenethiosulfonates ..... S. Kato and M. Mizuta 860

The Crystal and Molecular Structure of Vitamin B_6 Derivatives. I. Pyridoxal Phosphate Hydrate and Pyridoxal Phosphate Methyl Hemiacetal ..... T. Fujiwara 863

Solvolysis of Organic Phosphates. VI. Intramolecular Catalysis in the Hydrolysis of 2-Pyridylalkyl Phosphates ..... Y. Murakami, J. Sunamoto, and N. Kanamoto 871

The Synthesis of 3-Amino-3-deoxy-D-allose and Related Substances ..... S. Koto, N. Kawakatsu, and S. Zen 876

Synthetic Photochemistry. I. The Cycloaddition Reaction of Methyl Acetopyruvate with Olefins ..... H. Takeshita and S. Tanno 880

The Dimerization of Acrylonitrile to 2-Methyleneglutaronitrile with Metal Halide and Trialkylamine ..... Y. Watanabe and M. Takeda 883

The Synthesis and Absolute Configuration of Optically Active Tricyclo[4.3.0.$0^{3,8}$]nonane (Twist-brendane) ..... K. Naemura and M. Nakazaki 888

Cyclopropanes from Olefins by the Oxygen-accelerated Zinc-carbenoid Reaction ..... S. Miyano and H. Hashimoto 892

Oxidation of Diphosphine Dioxides, Disulfides and Phosphinothioite and Photolysis of Diphosphine Disulfides. Formation of Phosphinic and Phosphinothioic Anhydrides ..... T. Emoto, R. Okazaki, and N. Inamoto 898

A Novel Degradation Pathway of L-Ascorbic Acid under Non-oxidative Conditions ..... K. Goshima, N. Maezono, and K. Tokuyama 902

Autoxidation of Aromatic Hydrocarbons Catalyzed with Cobaltic Acetate in Acetic Acid Solution. II. Oxidation of Ethylbenzene and Cumene ..... Y. Kamiya and M. Kashima 905

Linear Conjugated Systems Bearing Aromatic Terminal Groups. XI. Syntheses and Electronic Spectra of α,ω-Diphenanthrylpolyenes ..... Y. Takeuchi, A. Yasuhara, S. Akiyama, and M. Nakagawa 909

Optically Active 9,10-Dihydro-9,10-etheno and -ethanoanthracenes. I. Syntheses of Optically Active 1,5-Disubstituted-9,10-dihydro-9,10-etheno and -ethanoanthracenes ..... H. Tatemitsu, F. Ogura, and M. Nakagawa 915

Stereochemical Studies on the Halogenation of Sulfoxides. I. The Chlorination of Cyclic Sulfoxides ..... S. Iriuchijima, M. Ishibashi, and G. Tsuchihashi 921

Stereochemical Studies on the Halogenation of Sulfoxides. II. The Bromination of Cyclic Sulfoxides ..... S. Iriuchijima and G. Tsuchihashi 929

Kinetics and Mechanism of Aziridine Synthesis from Ketoxime with Lithium Aluminum Hydride ..... H. Tanida, T. Okada, and K. Kotera 934

The Structures of the Reoxidation Products of 7,8-Dihydroneopterin ..... K. Sugiura and M. Goto 939

The Photochemistry of 2-Quinolinecarbonitriles. I. The Photochemical Reactions of 2-Quinolinecarbonitriles with Alcohols, Ethers, or Carboxylic Acids ..... N. Hata, I. Ono, S. Matono, and H. Hirose 942

Synthesis of Pyrazole Derivatives Using 1-Benzoyl-1-phenylhydrazine ..... A. A. El-Sayed and M. Ohta 947

Chemical Studies on Tuberactinomycin. V. Structures of Guanidino Amino Acids in Tuberactinomycins ..... T. Wakamiya, T. Shiba, T. Kaneko, H. Sakakibara, T. Noda, and T. Take 949

S_N2 Reactions in Dipolar Aprotic Solvents. III. Chlorine Isotopic Exchange Reactions of Cinnamyl Chlorides and 3-Aryl-2-propynyl Chlorides. Effect of the Unsaturated Group Adjacent to the Reaction Center ..... J. Hayami, N. Tanaka, and A. Kaji 954

4-Epifriedelin and 4-Epishionone. Structure and Reflex Effect ..... R. Aoyagi, S. Yamada, T. Tsuyuki, and T. Takahashi 959

Mesoionic 5-Acylimino-2-methylthiothiazoles ..... T. Shiba and H. Kato 964

Synthesis of a Gramicidin S Analog Containing δ-Aminovaleric Acid, [4–5-δ-Aminovaleric Acid]-Gramicidin S ..... S. Sōfuku 968

The Syntheses of Heterocyclic Compounds by the Ternary Condensation of Malononitrile, Salicylaldehyde, and Aliphatic Ketones in the Presence of Ammonium Acetate ..... A. Sakurai, Y. Motomura, and H. Midorikawa 973

Studies of Peptide Antibiotics. XXVIII. Syntheses of Sesquigramicidin S and Digramicidin S ..... S. Matsuura, M. Waki, T. Kato, and N. Izumiya 977

Synthetic Studies of Amino Acids by the Use of Copper(II) Complex. III. Syntheses of Several 2-Amino-2-deoxyaldonic Acids by the Use of Bisglycinato- and *N*-Pyruvylideneglycinatoaquocopper(II) ..... S. Ohdan, T. Okamoto, S. Maeda, T. Ichikawa, Y. Araki, and Y. Ishido 981

Stereospecific Syntheses and Acid Dissociations of 2,3-Diaminotetralins and 2,3-Diamino-*trans*-decalins ..... T. Yano, H. Kobayashi, and K. Ueno 985

Notes:

Further Study on the Course of Olefin Dimerization Catalyzed by σ-Aryl Nickel(II) Compound–Boron Trifluoride Etherate ..... K. Maruya, T. Mizoroki, and A. Ozaki 993

The Photoreaction of 2,6-Diphenyl-4*H*-thiopyran-4-one 1,1-Dioxide ..... H. Aoyama, Y. Sato, T. Nishio, and N. Sugiyama 1007

The Synthesis of 2-(Diphenylcyclopropenylidene)cyclobutane-1,3-dione (1,2-Diphenylbutatriafulvalene-3,5-dione) ..... T. Asao, M. Yagihara, and Y. Kitahara 1008

Photochemical Type II Elimination of Diisobutyl Trichloromethylphosphonate ..... Y. Ogata, Y. Izawa, and T. Ukigai 1009

Sesquiterpene Hydrocarbons of the Liverwort, *Scapania parvitexta* .. A. Matsuo, M. Nakayama, and S. Hayashi 1010

Palladium-catalyzed Exchange of Allylic Groups of Ethers and Esters with Carboxylic Anhydrides ..... K. Takahashi, G. Hata, and A. Miyake 1012

Synthesis of Sugar Derivatives of *N*-Methyl-*N*-nitrosourea ..... T. Machinami and T. Suami 1013

Synthesis of Planteose ..... T. Suami, T. Otake, T. Nishimura, and T. Ikeda 1014

Cationic Arylation. VI. Phenylation of Arenes with Benzenediazonium Trifluoroacetate ..... N. Kamigata, R. Hisada, H. Minato, and M. Kobayashi 1016

Synthetic Studies of Amino Acids by the Use of the Copper(II) Complex. IV. A Facile Procedure for Isolating Amino Acids from Their Copper(II) Complexes by Means of Amberlite IR-120B ..... S. Ohdan, T. Ichikawa, Y. Araki, and Y. Ishido 1019

Applied

The Peroxide-induced Addition of Acetic Acid to Olefins ..... Y. Suhara 990

No. 4

General and Physical

The Crystal Structure of *d,l*-1,1,4a*α*-Trimethyl-2*α*-hydroxy-8*α*-acetoxy-1,2,3,4,4a,5,6,7,8,9-decahydrophenanthrene ..... A. Furusaki, N. Hamanaka, and T. Matsumoto 1021

Studies of Ionic Association. I. Alkali Halide and Sodium Nitrate in the Butyl Alcohol–Water System ..... N. Yui, M. Nakayama, and Y. Kurokawa 1027

Excitation Transfer in the Radiolysis of Solid Alkane Mixtures at 77 K ..... T. Miyazaki, T. Wakayama, M. Fukaya, Y. Saitake, and Z. Kuri 1030

Effect of Matrix on the Formation of Solvent Radicals in the Radiolysis of Alkanes in the Solid State at 77 K ..... M. Fukaya, T. Wakayama, T. Miyazaki, Y. Saitake, and Z. Kuri 1036

The Proton Chemical Shift of *n*-Pentane ..... I. Ando and A. Nishioka 1040

The Crystal and Molecular Structure of *meso*-2,4-Pentanediol Borate ..... S. Kuribayashi 1045

Mercury-Photosensitized Decomposition of Ethylbenzene ..... H. Mikuni, A. Takase, M. Murano, and M. Takahasi 1048

The Temperature Dependence of the Nuclear Quadrupole Resonance of ^{35}Cl in $KClO_3$, $AgClO_3$, $Ba(ClO_3)_2 \cdot H_2O$, and $Cu(ClO_3)_2 \cdot 6H_2O$ ..... M. Suhara 1053

Line Shapes of the ^{35}Cl Nuclear Quadrupole Resonance in $KClO_3$, $AgClO_3$, $Ba(ClO_3)_2 \cdot H_2O$, and $Cu(ClO_3)_2 \cdot 6H_2O$ ..... M. Suhara and K. Shimizu 1056

The Photoreduction of 2-Nitronaphthalene in 2-Propanol..... K. Obi, J. W. Bottenheim, and I. Tanaka 1060

Emission Spectra of Aromatic Halides by Controlled Electron Impact..... T. Ogawa, M. Tsuji, M. Toyoda, and N. Ishibashi 1063

A CNDO Study of Biphenyl ..... A. Tajiri, S. Takagi, and M. Hatano 1067

Orbital Symmetry Control in the Interaction of Three Systems ..... H. Fujimoto, S. Kato, S. Yamabe, and K. Fukui 1071

The Polarized Phosphorescence Spectra of Phenazine in a Phenanthrene Crystal ..... K. Ikegami, N. Mikami, and M. Ito 1076

Kinetics of Oxygen Exchange between Selenate Ions and Water ..... A. Okumura and N. Okazaki 1080

Kinetics of Oxygen Exchange between Selenite Ions and Water ..... A. Okumura and N. Okazaki 1084

The Electronic Structure of the Electron Donor-Acceptor Complex in Its Lowest Excited Singlet State. II.... H. Masuhara, N. Tsujino, and N. Mataga 1088

The Crystal and Molecular Structure of 5-Chloro-7-iodo-8-quinolinol, Chinoform ..... S. Kashino and M. Haisa 1094

The Kinetics of Association-Dissociation Reaction in an Aqueous Solution of *n*-Butylamine by Means of Ultrasonic Absorption ..... S. Nishikawa and T. Yasunaga 1098

Vibration-Rotation Interaction Constants, *l*-Type Doubling Constants, and Cubic Force Constants of CH_3I and CD_3I ..... H. Matsuura and J. Overend 1102

The Adiabatic Compressibility of Nonelectrolyte Aqueous Solutions in Relation to the Structures of Water and Solutions ..... H. Endo 1106

Dielectric Relaxation and Molecular Structure. IV. Dielectric Relaxation and Hydrogen Bonding in Chloroanilines..... J. K. Vij and K. K. Srivastava 1112

Structure of Ethylene Oxide Oligomer Complexes. I. A 1 : 1 Complex of Tetraethylene Glycol Dimethyl Ether with Mercuric Chloride ..... R. Iwamoto 1114

Structure of Ethylene Oxide Oligomer Complexes. II. A 1 : 1 Complex of Tetraethylene Glycol Diethyl Ether with Mercuric Chloride..... R. Iwamoto 1118

Structure of Ethylene Oxide Oligomer Complexes. III. A 1:2 Complex of Hexaethylene Glycol Diethyl Ether with Mercuric Chloride ..... R. Iwamoto 1123

Structure of Ethylene Oxide Oligomer Complexes. IV. Infrared Study of $CH_3O(CH_2CH_2O)_mCH_3$–$HgCl_2$ Complexes ..... R. Iwamoto 1127

Magnetic Properties of Some Iminoxyl Polyradicals. V. EPR Studies of the TEMPAD Biradical..... A. Nakajima 1129

Study of the Poisoning Effect on Nickel and Nickel Boride Catalysts by Means of a Flow Microcalorimeter ..... T. Imanaka, Y. Nitta, and S. Teranishi 1134

The Crystal Data of Ternary Rare Earth Borides, RCo_2B_2..... K. Niihara, T. Shishido, and S. Yajima 1137

The Mechanism of the Lumiflavin-sensitized Photooxygenation of Tryptophan Accelerated by Adenine..... A. Yoshimura and S. Kato 1141

ESR Study of γ-Irradiated Ammonia–Silica Gel System..... S. Nagai 1144

Infrared Absorption Spectra of Aminobenzoic Acid Coordination Compounds..... T. Inomata and T. Moriwaki 1148

Radiation Synthesis of Hydrogen Cyanide from Nitrogen–Ethylene System. Effect of Temperature, Gas Density, and Reactor Wall..... Y. Ikezoe, S. Sato, and A. Danno 1154

Note:

Electron Transfer between Tetracyanoethylene and Its Anion Radical ..... R. Chang and J. Pikhler 1296

Analytical and Inorganic

Formation of Uranium Nitride by the Reaction of Uranium Hydride with Nitrogen and Ammonia..... H. Tagawa 1158

The Determination of Beryllium in Several Alloys by Means of Atomic Absorption Spectrophotometry..... T. Nakahara, M. Munemori, and S. Musha 1162

The Atomic Absorption Spectrophotometric Determination of Bismuth in Premixed Inert Gas(Entrained Air)-Hydrogen Flames ..... T. Nakahara, M. Munemori, and S. Musha 1166

Determination of Titanium in Some Metallurgical Materials by Atomic Absorption Spectrophotometry..... ..... T. Nakahara, M. Munemori, and S. Musha 1172

Formation of Zinc(II) Complexes with Several Carboxylic Acids and Their Extraction with Carbon Tetrachloride ..... H. Moriya and T. Sekine 1178

A Study of Silver(I) Complexes with Some π-Donors and n-Donors in Chloroform by the Solvent Extraction Method ..... T. Sekine and Y. Takahashi 1183

The Oxidation of Iron(II) by Molecular Oxygen Catalyzed by Chloride Ion, Thiocyanate Ion, and Ethylenediamine in Dimethyl Sulfoxide..... Y. Unno and G. Wada 1188

The Preparation and Spectroscopic Properties of Fumaronitrile Complexes of Palladium(0) and Platinum(0) ..... K. Suzuki and H. Okuda 1195

A Separation Scheme for the Analysis of Metal Ions Using Column Extraction Chromatography. Grouping of Nineteen Metal Ions into Six Fractions ..... I. Akaza, T. Tajima, and T. Kiba 1199

Organic and Biological

The Catalytic Effect of the Bismuth Nitrate on the Autoxidation of Olefins....F. Tsuchiya and T. Ikawa 1204

A Study of the Catalytic Partial Oxidation of Hydrocarbons. XVI. The Effect of the Bi_2O_3 Content in the MoO_3-Bi_2O_3-P_2O_5 Catalysts on the Oxidation of Various Olefins, Acids, and Aldehydes .... M. Ai and S. Suzuki 1208

The Condensation Reactions of 5-Azidotropolone Derivatives with Active Methylene Compounds..... .....H. Horino and T. Toda 1212

The Calculation of Dipole Polarizability and Anisotropy by the CNDO Method..... ..... T. Miyazaki and H. Shinoda 1216

Arylation and Vinylation Reactions of Benzo[*b*]furan *via* Organopalladium Intermediates..... ..... A. Kasahara, T. Izumi, M. Yodono, R. Saito, T. Takeda, and T. Sugawara 1220

Determination of Catalytic Rate Constants in the Reaction of Lysozyme and Oligosaccharide by Computer Simulation Analysis ..... H. Tada and T. Kakitani 1226

The Reaction of *O,O'*-Diethyl α-Lithiomethylphosphonate with Organic Dihalides..... ..... K. Oshima, T. Shirafuji, H. Yamamoto, and H. Nozaki 1233

Studies on Reactions of the *N*-Phosphonium Salts of Pyridines. I. A New Method for the Activation of Carboxylic Acids *via* the *N*-Phosphonium Salts by Means of the Oxidation of Tri- and Di-esters of Phosphorous Acid in the Presence of Tertiary Amines ..... N. Yamazaki and F. Higashi 1235

Studies on Reactions of the *N*-Phosphonium Salts of Pyridines. II. A New Method for the Activation of Carboxylic Acids *via* the *N*-Phosphonium Salts by Means of the Oxidation of Phosphorous Acid and Its Monoesters in the Presence of Tertiary Amines..... N. Yamazaki and F. Higashi 1239

Stereospecific Addition Reaction between Butadiene and Amines....T. Narita, N. Imai, and T. Tsuruta 1242

Derivatives of Cyclic Disulfides. II. Alkaline Hydrolysis of 1,2-Dithiaacenaphthene *S*-Oxide..... ..... S. Tamagaki, H. Hirota, and S. Oae 1247

The Reduction of Triazolium and Tetrazolium Iodides with Sodium Borohydride..... ..... T. Isida, T. Akiyama, N. Mihara, S. Kozima, and K. Sisido 1250

Dehydration in Liquid Sulfur Dioxide. I. Acid Amide and Acid Anhydride Synthesis in an Iodine–Pyridine–Sulfur Dioxide System ..... M. Nojima, S. Hasegawa, and N. Tokura 1254

The Photochemical Reaction of Diphenylacetylene with Enamines .....N. Miyamoto and H. Nozaki 1257

Studies on Aminosugars. XXXIII. Syntheses of 4-Azido-2,3,6-tri-*O*-benzyl-4-deoxy- and 6-Azido-2,3,4-tri-*O*-benzyl-6-deoxy-α-D-glucopyranosyl Chloride .....Y. Takagi, T. Tsuchiya, and S. Umezawa 1261

Studies on Aminosugars. XXXIV. Synthesis of 4-*O*- and 6-*O*-(4-Amino-4-deoxy-α-D-glucopyranosyl)-2-deoxystreptamine .....Y. Nishimura, T. Tsuchiya, and S. Umezawa 1263

Reaction between *p*-Toluenesulfinic Acid and Diphenyldiazomethane..... ..... M. Kobayashi, H. Minato, and H. Fukuda 1266

New Agents for *t*-Butyloxycarbonylation and *p*-Methoxybenzyloxycarbonylation of Amino Acids ....T. Nagasawa, K. Kuroiwa, K. Narita, and Y. Isowa 1269

Quantitative Estimation of the Fehling Reaction of 1-*O*-Protected Uronic Acids..... ..... J. Yoshimura, J. Hashimoto, and H. Ando 1272

The Reaction of Nitriles with Phosgene. VII. Synthesis of α,β-Unsaturated Isocyanates ..... M. Ohoka, S. Yanagida, K. Sugahara, T. Fujita, M. Okahara, and S. Komori 1275

Total Syntheses of Antimycin A_3 and Its Diastereomer ..... M. Kinoshita, S. Aburaki, M. Wada, and S. Umezawa 1279

The Oxidation of 2,3-Dihydro-4*H*-pyran-4-ones ..... K. Sato and M. Ohashi 1288

Applied

The Optical and Electrical Properties of Metal Photo-doped Chalcogenide Glasses ..... I. Shimizu, H. Sakuma, H. Kokado and E. Inoue 1291

No. 5

General and Physical

Calculation of the Nonradiative Transition Rate for the $^1B_{1u} \rightarrow {}^1B_{2u}$ Transition in Benzene ..... N. Shimakura, Y. Fujimura, and T. Nakajima 1297

The SCF Screened Potential in π-Electron Systems ..... T. Terasaka, T. Iijima, Y. Fujimura, and T. Nakajima 1301

Studies on Fragment Ion Distribution and Reaction with the Use of a Charge Spectrometer. I. Mass Spectra of Methylamine after Charge Exchange with Fast Positive Ions and Their Recombination Energies ..... T. Nagatani, K. Yosihara, and T. Shiokawa 1306

Determination of the Intersystem Crossing Probabilities of Acridine in Various Alcohols ..... K. Tokumura, K. Kikuchi, and M. Koizumi 1309

The Determination of the CMC of Surfactants in Some Organic Solvents ..... S. Muto and K. Meguro 1316

Adsorption and Inhibition Effect of Triton X at the Mercury/Solution Interface ..... T. Ohsaka, H. Yamamoto, and T. Yoshida 1320

Adsorption of Organic Polymers on Platinum Electrode ..... T. Ohsaka, Y. Abe, and T. Yoshida 1324

Semiconducting Properties of Ln_2CuO_4 (Ln=Rare earths) ..... T. Kenjo and S. Yajima 1329

Effective Ionic Charges of Several Uniaxial Crystals ..... J. Hiraishi 1334

Solubilization Behavior of Mixed Micelles of Anionic and Nonionic Surfactants in Relation to Their Micellar Structures ..... F. Tokiwa and K. Tsujii 1338

Interpretation of Photoelectron Spectra of Halomethanes ..... S. Katsumata and K. Kimura 1342

Chemical Approach to the Radiolysis of Polyphosphate Glass. I. Effects of Sb(III, V), Mo(V, VI), and U(IV, VI) Ions ..... Y. Kobayashi and N. Matsuura 1346

Dielectric Studies on Isobutyl Halides in the Liquid State ..... A. Das, A. Ghatak, and A. Hasan 1354

On the MO Perturbation Theory of Molecular Rearrangements ..... H. Fujimoto, M. Miyagi, S. Yamabe, and K. Fukui 1357

The Dielectric Relaxation of γ-Alumina ..... S. Kondo, M. Muroya, H. Fujiwara, and N. Yamaguchi 1362

Ultraviolet Spectra of Hydrazide Solutions and Their Hydrolysis. I. Hydrolysis of Formhydrazide in Acid Solutions ..... M. Mashima and F. Ikeda 1366

Ultraviolet Spectra of Hydrazide Solutions and Their Hydrolysis. II. Hydrolysis of Formhydrazide in Alkaline Solutions ..... M. Mashima and F. Ikeda 1371

The Crystal and Molecular Structure of Piperazinium Terephthalate, $(H_2NC_4H_8NH_2)^{2+}(O_2C \cdot C_6H_4 \cdot CO_2)^{2-}$ ..... S. Kashino, M. Sasaki, and M. Haisa 1375

ESR of Hot Ions: Ni(I) Complex Ions Produced in Rigid Solutions by γ-Irradiation ..... C. Amano and S. Fujiwara 1379

ESR Studies on Radiation-Induced Polymerization of 1,3-Butadiene in Urea Canal Complexes ..... T. Ohmori, T. Ichikawa, and M. Iwasaki 1383

An X-Ray Redetermination of the Crystal Structure of Tin(II) Chloride Dihydrate ..... H. Kiriyama, K. Kitahama, O. Nakamura, and R. Kiriyama 1389

Molecular Structure of Nortricyclene Studied by Gas Electron Diffraction ..... R. K. Bohn, K. Mizuno, T. Fukuyama, and K. Kuchitsu 1395

Molecular Vibrations and Force Fields of Alkyl Sulfides. VI. Methyl Ethyl Sulfide and Its Deuterated Compounds, and Diethyl Sulfide ..... M. Ohsaku, Y. Shiro, and H. Murata 1399

Ionic Mobility of Some Inorganic Ions in Mixed Solvents from Electromigration on Paper ..... M. M. Lahiri, B. K. Seal, and S. K. Mukherjee 1408

Kinetics and Mechanism of the Transformation of Vaterite to Calcite ..... M. S. Rao 1414

Transmission of Substituent Effects through Oxygen and Sulfur Atoms. I. ^{1}H Chemical Shifts of Ring-substituted Phenyl Vinyl Ethers and Sulfides ..... T. Fueno, O. Kajimoto, K. Izawa, and M. Masago 1418

Transmission of Substituent Effects through Oxygen and Sulfur Atoms. II. ^{13}C Chemical Shifts of Ring-Substituted Phenyl Vinyl Ethers and Sulfides ..... O. Kajimoto, M. Kobayashi, and T. Fueno 1422

Transmission of Substituent Effects through Oxygen and Sulfur Atoms. III. The Ionization Equilibrium Constants of Ring-substituted *cis*-β-Phenoxyacrylic Acids ..... O. Kajimoto, M. Kobayashi, and T. Fueno 1425

Bond Orbital Calculations on the Methane and Silane Molecules ..... S. Kohda and S. Katagiri 1428

A Method of Correction of the Angular Resolution for Determination of Absolute Total Cross Sections Using Molecular Beams ..... I. Kusunoki 1432

A Study on Restricted Rotation in 1-Acylpyrroles ..... T. Matsuo, H. Shosenji, and R. Miyamoto 1437

The Crystal and Molecular Structure of 4,10b-Methano-8*H*-benzo[*ab*]cyclodecen-8-one ..... R. Yahashi, H. Shimanouchi, and Y. Sasada 1441

Studies on the Fragment Ion Distribution and Their Reactions by the Use of a Charge Spectrometer. II. The Charge Exchange Reactions in Methanol with Fast Positive Ions ..... T. Nagatani, K. Yoshihara, and T. Shiokawa 1450

Notes:

Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XXVI. Asymmetric Hydrogenation of β-Keto Esters ..... T. Tanabe and Y. Izumi 1550

Viscosity *B* Coefficients for Some Alkyl Sulfates in Aqueous Solutions ..... K. Tamaki, Y. Ōhara, and Y. Isomura 1551

Interaction Parameters of Poly(*o*-chlorostyrene)-Solvent Systems ..... K. Gekko and K. Matsumura 1554

Laser-induced Chemical Reactions. VI. On the Formation Processes of Acetylene ..... K. Taki, P. H. Kim, and S. Namba 1556

Photoelectron Spectra of Tetrahydropyran, 1,3-Dioxane, and 1,4-Dioxane ..... T. Kobayashi and S. Nagakura 1558

Microwave Spectrum and Centrifugal Distortion Effects of Thionyl Fluoride ..... I. Yamaguchi, O. Ohashi, H. Takahashi, T. Sakaizumi, and M. Onda 1560

Studies on the Interaction between Long Chain Alcohols and Alkyl Sulfates. III. Magnetic Properties of Intermolecular Complexes ..... Y. Moroi, K. Motomura, and R. Matuura 1562

Electronic Properties of the Neutral Radicals from Phenothiazines ..... M. Kamiya, T. Mitsui, and Y. Akahori 1577

Analytical and Inorganic

Derivatographic Studies on Transition Metal Complexes. X. Thermal Octahecral-to-Square Planar Transformation of $Ni(NN\text{-deen})_2X_2 \cdot nH_2O$ in Solid Phase ..... R. Tsuchiya, S. Joba, A. Uehara, and E. Kyuno 1454

Alkoxy and Phenoxy Bridged Dimeric Copper(II) Complexes with Salicylaldimine Ligands ..... J. O. Miners and E. Sinn 1457

Binuclear Metal Complexes. VI. Syntheses and Properties of Binuclear Copper(II) Complexes of 2,6-Bis[*N*-(β-dialkylaminoethyl)iminomethyl]-4-methylphenol ..... H. Okawa, T. Tokii, Y. Nonaka, Y. Muto, and S. Kida 1462

Transference of Water to the Nitrobenzene Phase for the Extraction of Tris(1,10-phenanthroline)iron(II) and Tris(2,2′-dipyridine)iron(II) Chelate Salts ..... Y. Yamamoto, T. Tarumoto, and T. Tarui 1466

Cadmium and Silver Sulfide-impregnated Silicone Rubber Membranes as Selective Electrodes for Cadmium Ions ..... H. Hirata and K. Date 1468

Electronic Spectra of High-Spin Iron(III) Tetraphenylporphins ..... H. Kobayashi, Y. Yanagawa, H. Osada, S. Minami, and M. Shimizu 1471

Organic and Biological

Identification of Normal Paraffins and Olefins from Thermal Decomposition Products of Polyethylene ..... T. A. Iida, K. Honda, and H. Nozaki 1480

Asymmetric Hydrogenation of C=O Double Bond with Modified Raney Nickel. XXVII. Asymmetric Hydrogenation of Acetylacetone ..... T. Tanabe 1482

Peptide Synthesis *via* *N*-Acylated Aziridinone. II. The Reaction of *N*-Acylated Aziridinone and Its Use in Peptide Synthesis ..... M. Miyoshi 1489

A Kinetic Study on the Decomposition of Benzyl *N*-(Hydroxymethyl)carbamate in Alkaline Solution ..... S. Takeuchi 1496

The Reactions of 2-Hydroxybenzophenones with Lead Tetraacetate and Manganic Acetate ..... K. Kurosawa, Y. Sasaki, and M. Ikeda 1498

Chemistry of Mixed Transition-metal Complexes. V. The Preparation of Several Mixed Transition-metal Complexes with Two μ-Diphenylphosphido Groups ..... K. Yasufuku and H. Yamazaki 1502

Arylation of Olefin with Iodobenzene Catalyzed by Palladium ..... K. Mori, T. Mizoroki, and A. Ozaki 1505

Syntheses of Some Cyanine Dyes of Bunte Salt Type ..... M. Yamamoto, S. Nakamura, K. Yoshimura, M. Yuge, S. Morosawa, and A. Yokoo 1509

Formation of Sulfur Ylids by Catalytic Action of Dialkoxy Disulfides ..... H. Matsuyama, H. Minato, and M. Kobayashi 1512

Branched-Chain Sugars. II. On the Configuration of Branched-Chain Sugars from Methyl 2-*O*-Benzoyl-4,6-*O*-benzylidene-α-D-ribo-hexopyranosid-3-ulose ..... J. Yoshimura, K. Sato, K. Kobayashi, and C. Shin 1515

Optically Active Triptycenes. VI. Optical Resolution of 2,5-Dihydroxy-8-methoxycarbonyltriptycene and Absolute Configuration of 2,5-Dimethoxy-8-methoxycarbonyltriptycene ..... Y. Shimizu, T. Naito, F. Ogura, and M. Nakagawa 1520

Aminosugars. XXI. Conformation of Cyclic Imido Groups Attached to the Glucopyranose-ring ..... M. Iwakawa and J. Yoshimura 1525

Photochemical Reaction of 1,2-Naphthoquinone and Its Derivatives with Xanthene ..... K. Maruyama and A. Takuwa 1529

Studies on Nitro Sugars. III. The Synthesis of 3-Nitrohexofuranose Derivatives ..... T. Takamoto, Y. Yokota, R. Sudoh, and T. Nakagawa 1532

The Acid-catalyzed Isomerization of α-Ylangene and α-Ylangene Epoxide ..... Y. Ohta and Y. Hirose 1535

Intramolecular Participation of Sulfide Linkage in the Reactivity of Carbene and Diazoalkanes. I. Alkylcarbenes and Diazoalkanes Bearing Alkylthio, Arylthio, and Allylthio Groups on α-Carbon ..... I. Ojima and K. Kondo 1539

Circular Dichroism Studies of Ring-conformational and -rotational Equilibria in 2-Isopropenylcyclohexanones ..... S. Watanabe 1546

Notes:

Synthesis of Bis(2,4,5-trimethylphenyl)-, Bis(2,4,6-trimethylphenyl)-, and Bis(3,4,5-trimethylphenyl)tetramethyloctadecanonaene ..... T. Hamasaki, K. Chin, N. Okukado, and M. Yamaguchi 1553

Synthesis of a Nucleotide Analog Preparation of 7-(2′-Acetoxypropyl)theophylline 3′-Phosphate ..... T. Seita, K. Yamauchi, M. Kinoshita, and M. Imoto 1563

The Isolation of *trans*-Chrysanthenyl Acetate and Chrysanthenone from the Essential Oil of *Chrysanthemum shiwogiku* ..... A. Matsuo, Y. Uchio, M. Nakayama, and S. Hayashi 1565

The Selective Hydrogenation of the Knoevenagel Condensates of Acetylacetone with Aldehydes Catalyzed by Raney Nickel as a Route to 3-Substituted 2,4-Pentanediones ..... K. Uehara, M. Ito, and M. Tanaka 1566

The Ring-Opening Reactivities of Three-Membered Cyclic Compounds. I. The Ring-Opening Reactions of Three-Membered Cyclic Compounds by Hydrogen Chloride ..... H. Kakiuchi and T. Iijima 1568

4-(1,2-Diacetoxyethyl)pyridine and Its Chemical Properties ..... T. Furuyama, K. Mori, I. Nagoya, K. Tamura, and M. Yoshino 1570

Synthesis of Some Substituted Nucleoside Analogs ..... T. Seita, M. Kinoshita, and M. Imoto 1572

Bildung von 1,4-Bis(2,2-biphenylylen)-1,3-butadien ..... M. Minabe und K. Suzuki 1573

The NQR Spectrum and Structure of Hexachloropentafulvene ..... I. Agranat, M. Hayek, and D. Gill 1575

2,2-Dimethyl[7](2,6)pyridinophane and the Flipping of Its Heptamethylene Chain ..... S. Fujita, K. Imamura, and H. Nozaki 1579

No. 6

General and Physical

A Temperature-jump Study of the Kinetics of the Complex Formation of Iron(III) with *m*-Nitrophenol..... K. Tamura 1581
The Adiabatic Compressibility of Nonelectrolyte Aqueous Solutions in Relation to the Structures of Water and Solutions. II ..... H. Endo 1586
Mössbauer Study of the Thermal Decomposition Products of $SrFeO_4$ ..... T. Ichida 1591
Apparent Molal Volumes of Some Organic Electrolytes in a Dilute Aqueous Solution at 5, 25, and 45 °C.. ..... M. Sakurai 1596
Excited States and Intermediates in the Photochemistry of Chromium(III) Complexes Studied by Flash Method ..... T. Ohno and S. Kato 1602
Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. VI. 3,3′,5,5′-Tetranitrobiphenyl-4,4′-diol Complexes with Aromatic Amines..... G. Saito and Y. Matsunaga 1609
Infrared Study of Carbon Dioxide Adsorbed on Magnesium and Calcium Oxides..... Y. Fukuda and K. Tanabe 1616
Initiation Step of Methane Pyrolysis. Further Studies on Initiation Step of Methane Pyrolysis....Y. Yano 1619
An Investigation of a Surface Reaction between Pyrrhotite and the Hydrogen–Hydrogen Sulfide Mixture .. .. M. Katsumoto, K. Fueki, and T. Mukaibo 1624
Studies on Fragment Ion Distribution and Reactions by the Use of a Charge Spectrometer. II. Reactivities of the Excited Ions from Methylamine after Charge Exchange with Positive Ions ..... T. Nagatani, K. Yoshihara, and T. Shiokawa 1628
Studies of the Surface of Rutile Single Crystals by Means of Electrical Conductivity ..... T. Iwaki 1631
The Properties of Water in Macromolecular Gels. VI. The Relationship between the Rheological Properties and the States of Water in Macromolecular Gels ..... M. Aizawa, S. Suzuki, T. Suzuki, and H. Toyama 1638
The 2288 Å Photolysis of Hydrogen Iodide in the Presence of Ethylene and Propylene..... Y. Sano and S. Sato 1641
Laser Photolysis Studies on the Ionization of *N*-Vinylcarbazole and *N*-Ethylcarbazole in the Presence and Absence of Electron Acceptors ..... Y. Taniguchi, Y. Nishina, and N. Mataga 1646
A Kinetic Study of the Mutarotation of D-Xylose by the Polarographic Method..T. Ikeda and M. Senda 1650
Ultrasonic Absorption in Aqueous Solutions of Octylamine. Kinetic Investigation of Proton Transfer Reaction ..... S. Nishikawa, T. Yasunaga, and N. Tatsumoto 1657
Dielectric Behavior of the Packing Bed of Alumina Granules with Adsorbed Water ..... K. Umeya and T. Kanno 1660
Kinetics of the Reaction at the Silver–Silver Sulfide Interface....J. Mizusaki, K. Fueki, and T. Mukaibo 1663
Notes:
A Theoretical Treatment of the Fragmentation Rules in the Mass Spectrometry of Organic Compounds.... ..... H. Ichikawa and M. Ogata 1873
Phase Diagram of the Phenanthrene/Carbazole–Picric Acid System .....S. Koizumi and Y. Matsunaga 1875
Infrared Spectra of CO and O_2 Adsorbed on Tungsten.....G. Blyholder and M. Tanaka 1876
Dielectric Relaxation in α,ω-Dichloroalkanes in Benzene Solution .....S. Chandra and R. A. Yadav 1900

Analytical and Inorganic

Chemical Analysis of Mixtures of Metals by a Logarithmic Extrapolation Method..... Y. Nagaosa and T. Yonekubo 1667
Potential-step Anodic Stripping Voltammetry .....M. Komatsu 1670
Potentiometric Studies of Cadmium- and Zinc-Halide Complexes in Acetonitrile..M. Aihara and S. Misumi 1674
The Internal Friction of Glasses Containing Alkali under an Electric Field....H. Sakamura and M. Imaoka 1676
The Hydrolysis of Ferric Complexes. Magnetic and Spectrophotometric Studies of Aqueous Solutions of Ferric Salts .....M. Kiyama and T. Takada 1680
Isomerism of the Metal Complexes Containing Multidentate Ligands. III. Geometric and Optical Isomers of the Tris(2-methyl-1,2-propanediamine)cobalt(III) Ion..... ..... M. Kojima, Y. Yoshikawa, and K. Yamasaki 1687
Determination of Arsenic(III) by Anodic Stripping Method Using Co-deposition with Copper ..... T. Kuwabara, S. Suzuki, and S. Araki 1690

The Analytical Application of Sulfur Analogues of β-Diketones. II. The Separation of Mercury(II), Cobalt(II), and Zinc(II) as Their STTA(1,1,1-Trifluoro-4-(2-thienyl)-4-mercaptobut-3-en-2-one) Complexes by Extraction Chromatography ..... T. Honjo and T. Kiba 1694
Trinuclear Intermediates Isolated in the Reactions of Bis(acetylacetonato)-nickel(II) with Dry Hydrogen Bromide ..... K. Isobe, K. Noda, Y. Nakamura, and S. Kawaguchi 1699
Stability Constants of Lanthanoid(III) Complexes with 7-Bromo-8-hydroxy-5-quinolinesulfonic Acid..... G. S. Maneu 1704
The Atomic Absorption Spectrophotometric Determination of Arsenic and Selenium in Premixed Inert Gas-(Entrained Air)-Hydrogen Flames with a "Multi-flame" Burner ..... T. Nakahara, H. Nishino, M. Munemori, and S. Musha 1706
Peroxo-, Oxo-, and catena-Oxo-Manganese Complexes with *N,N'*-Ethylenebis(salicylideneimine) Analogues ..... T. Matsushita, T. Yarino, I. Masuda, T. Shono, and K. Shinra 1712
Pyrolysis-Gas Chromatographic Studies of Ionically-chlorinated Poly-α-methylstyrenes..... T. Okumoto and T. Takeuchi 1717
The Hydrolysis of Y^{3+}, La^{3+}, Gd^{3+}, and Er^{3+} Ions in an Aqueous Solution Containing 3 M $(Li)ClO_4$ as an Ionic Medium ..... T. Amaya, H. Kakihana, and M. Maeda 1720
Cobalt(II) Complexes of Diethylenetriamine-*N,N',N''*-triacetic Acid ..... T. Kawato, H. Kanatomi, and I. Murase 1723
Notes:
The Synthesis of Some New Europium(II) Vanadites ..... T. Shin-ike, G. Adachi, and J. Shiokawa 1878
Nonbridging Ligand Effects on the Reduction of Nitrilopolyaminocarboxylato-cobalt(III) Complexes by Iron(II) ..... K. Ohashi 1880
Recoil ^{82}Br Reactions with Liquid Chlorofluorocarbons..... T. Tominaga, R. Iwata, and Y. Makide 1882

Organic and Biological

Studies on Nitro Carboxylic Acids. III. The Reaction of α-Nitroolefins with Triethyl or Diethyl Phosphite ..... C. Shin, Y. Yonezawa, K. Katayama, and J. Yoshimura 1727
Solvolysis of Organic Phosphates. VIII. γ-Elimination in the Spontaneous Hydrolysis of 2-Chloro-3-pyridylmethyl Phosphate ..... Y. Murakami, J. Sunamoto, and N. Kanamoto 1730
Methylene Analogs of Cyclobutenedione. VI. Interconversion between 3,4-Dimethylcyclobut-3-ene-1,2-dione and 3,4-Dimethylenecyclobutane-1,2-dione ..... F. Toda and N. Ooi 1733
Methylene Analogs of Cyclobutenedione. VII. Photolysis of 2,3-Bis(diphenylmethylene)cyclobutanone and Its Derivatives ..... F. Toda, H. Nakaoka, K. Yuwane, and E. Todo 1737
Oxygen-18 Scrambling Reaction of Aroyl Alkyl Carbonates..... S. Oae, Y. Uchida, K. Fujimori, and S. Kozuka 1741
Mechanism of Oxygen Exchange Reaction of Diaryl and Alkyl Aryl Sulfoxides in Sulfuric Acid ..... N. Kunieda and S. Oae 1745
Preparation, Polymerization, and Copolymerization of *N*-Vinyl Phthalimidine ..... K. Murata 1752
The Synthesis of 4-Chloro-3-benzoyl-2-azetinone Derivatives and Their Conversion into *N*-Benzoyl-2,4-azetidinedione Derivatives ..... K. Matsui and M. Motoi 1755
The Nucleophilic Photo-substitution Reaction of Anthraquinone Derivatives. I. The Photo-amination of Sodium 1-Amino-4-bromoanthraquinone-2-sulfonate ..... H. Inoue, M. Hida, T. D. Tuong, and T. Murata 1759
Poly(vinyl alcohol) with Pending 5-Substituted Uracils ..... T. Seita, M. Kinoshita, and M. Imoto 1762
N-Halogen Compounds of Cyanamide Derivatives. I. Rearrangement of *N*-Alkylhaloamidines..... T. Fuchigami, E. Ichikawa, and K. Odo 1765
Studies of Azo Colors. XI. The Diazo-coupling Reaction of Pyrroles..... K. Mitsumura, Y. Hashida, S. Sekiguchi, and K. Matsui 1770
Phenanthro[4,5-*bcd*]furan Derivatives. I. A Synthesis of 5-Hydroxy-1-methoxyphenanthro[4,5-*bcd*]furan .... T. Shimizu, T. Horaguchi, and A. Watanabe 1772
The Palladium-catalyzed Arylation of 4-Chromanone Enol Esters. A New Synthesis of Isoflavanones .... R. Saito, T. Izumi, and A. Kasahara 1776
One-Electron Reduction of Carbonium Ions. III. The Effect of Added Anions on the Rate of Reduction of the Tropylium Ion with Cr(II) ..... K. Okamoto, K. Komatsu, S. Tsukada, and O. Murai 1780
One-Electron Reduction of Carbonium Ions. IV. A Kinetic Study on the Reduction of the Substituted Tropylium Ions with Cr(II)..... K. Okamoto, K. Komatsu, O. Murai, O. Sakaguchi, and Y. Matsui 1785
The Nickel-catalyzed Cyclodimerization of Butadiene. The Synthesis of 2-Methylenevinylcyclopentane and the Isomerization of 1,3,7-Octatriene ..... J. Kiji, K. Yamamoto, S. Mitani, S. Yoshikawa, and J. Furukawa 1791

Solvolysis of *cis*- and *trans*-4-*t*-Butylcyclohexyl Tosylates in *N*-Methyl-acetamide. Rates and Products Distribution ..... S. Saitô, T. Yabuki, T. Moriwake, and K. Okamoto 1795
Synthesis and Reactions of α-Bromoaroylacetarylamides ....A. S. Shawali, M. I. Ali, and A. A. Fahmi 1798
A New Route for the Preparation of Pyrazolo[4,3-*c*]pyridines .....A. A. El-sayed and M. Ohta 1801
Spectroscopic Investigations of α-Keto Phosphorus Compounds .....T. Osaki, J. Otera, and Y. Kawasaki 1803
Reactions of Vinyloxyboranes. A Convenient Method for the Preparation of β-Hydroxy Thiolesters, Esters and Ketones .....K. Inomata, M. Muraki, and T. Mukaiyama 1807
Studies of the Synthetic Model Enzyme. The Synthesis of Cyclo(His–Glu–Cys–D-Phe–Gly)$_2$ as the Esterase Model .....K. Nakajima and K. Okawa 1811
The Formation and Chelate-forming Properties of 2-Chloriminocyclohexanone Oxime and Its Hydrochloride ..... Y. Kobayashi and S. Wakamatsu 1816
The Structure of the Crystalline Adduct of Nitrosobenzene and 2,3-Dimethyl-1,3-butadiene ..... E. Oikawa and S. Tsubaki 1819
Synthesis and Structural Investigation of *trans*-8-Oxa-bicyclo[4.3.0]nonan-3-ols..... T.-Y. Leong, T. Imagawa, and M. Kawanisi 1823
Studies of the Synthesis of Furan Compounds. XXIX. Syntheses of 2-(5-Nitro-2-furyl)vinyl-1,8-naphthyridines ..... I. Hirao, Y. Kato, Y. Fukano, and S. Yanai 1826
Studies on 3,5-Pyrazolidinediones. IV. Addition of 4-Arylazo-3,5-pyrazolidinediones to Ethyl Acrylate.... ..... M. H. Elnagdi and M. Ohta 1830
The Reaction of Dicyclopentadiene with Ethyl Diazoacetate .....T. Sato, T. Mori, and J. Shinoda 1833
A New Synthesis of Substituted 8-Aminopurine Derivatives..... .....F. Yoneda, M. Higuchi, T. Matsumura, and K. Senga 1836
The Synthesis and the Stereochemistry of 4-Chromanones and 4-Chromanols with Bulky Substituents ..... K. Kabuto, Y. Kikuchi, S. Yamaguchi, and N. Inoue 1839
Chemistry of α-Haloaldehydes. II. Base-catalyzed Condensation of α-Haloaldehydes with Methyl Chloroacetate .....A. Takeda, S. Tsuboi, and T. Hongo 1844
Synthesis of Alanosine .....Y. Isowa, H. Kurita, M. Ohmori, M. Sato, and K. Mori 1847
Photochemical Substitution of Ferrocene in Halogenated Hydrocarbon–Ethanol Solutions..... ..... T. Akiyama, Y. Hoshi, S. Gotō, and A. Sugimori 1851
The Mechanism of Photo-substitution of Ferrocene in Haloalkane–Ethanol Solutions .... T. Akiyama, A. Sugimori, and H. Hermann 1855
Reaction of Alkylbenzene. IX. A Study of the Reaction of Methylbenzenes under the Influence of Aluminum Chloride–Hydrogen Chloride by Means of NMR ....Y. Okami, N. Otani, D. Katoh, and S. Hamanaka 1860
Sterically Controlled Syntheses of Optically Active Organic Compounds. XIX. Asymmetric Syntheses of Amino Acids by the Strecker Reaction .....K. Harada, T. Okawara, and K. Matsumoto 1865
Sterically Controlled Syntheses of Optically Active Organic Compounds. XX. Synthesis of Optically Active Alanine from α-Bromopropionamides .....T. Okawara and K. Harada 1869

Notes:

Two Natural Acetylenic Aromatic Carotenoids .....T. Hamasaki, N. Okukado, and M. Yamaguchi 1884
The Synthesis of Optically-active Valine by the Stereoselective Decarboxylation of α-(α-Methylbenzylamino)-α-isopropylmalonic Acid .....T. Hayakawa and K. Shimizu 1886
Cis- and *Trans*-Chlorination of Cyclohexene by Antimony Pentachloride and Triethyloxonium Hexachloroantimonate..... F. Akiyama, T. Horie, and M. Matsuda 1888
The Synthesis of Some 2*H*-Pyrazino[2,3-*c*][1,2,4]thiadiazine 1,1-Dioxides .... M. Hattori, M. Yoneda, and M. Goto 1890
Asymmetric Reactions. VIII. Stereoselectivities in Several Orgenometallic Reactions with *N*-Benzyl-2,3-*O*-isopropylidene-D-glyceraldimine .....Y. Ohgo, Y. Konda, and J. Yoshimura 1892
The Synthesis of a Sweet Peptide, α-L-Aspartyl-L-phenylalanine Methyl Ester, without the Use of Protecting Groups .....Y. Ariyoshi, T. Yamatani, N. Uchiyama, Y. Adachi, and N. Sato 1893
The Inhibitory Effect of Several Olefins on the Formation of the Zinc-carbenoid Reagent from Diethylzinc and Chloroiodomethane .....S. Miyano and H. Hashimoto 1895
Organic Synthesis by Means of Noble Metal Compounds. L. Palladium Catalyzed Reactions of Enamines with Butadiene and Allyl Acetate .....J. Tsuji 1896
The Preparation of *N*-(Alkylthio)- and *N*-(Arylthio)succinimides ....Y. Abe, T. Nakabayashi, and J. Tsurugi 1898
Sterically Controlled Syntheses of Optically Active Organic Compounds. XXI. The Temperature Dependence of Hydrogenolytic Asymmetric Transamination between Optically Active Phenylglycine and α-Keto Acids ..... K. Harada, T. Iwasaki, and T. Okawara 1901

No. 7

General and Physical

Ionic Photodissociation of Electron Donor-Acceptor Complexes..M. Shimada, H. Masuhara, and N. Mataga 1903

Reaction of Mo^{5+} Formed on Supported Molybdena Catalysts with Oxygen or Water..... M. Akimoto and E. Echigoya 1909

Equilibrium Composition of 1-Butanol–Water–Alkali Hydroxide System and Distribution of the Base..... N. Yui, Y. Kurokawa, and I. Sakuraba 1914

An Interstitial-Electron Model for the Structure of Metals and Alloys. III. Interpretation and Correlation of Properties of Group I—V Metals.....O. Johnson 1919

An Interstitial-Electron Model for the Structure of Metals and Alloys. IV. Magnetic Properties of Metals and Electronic Structures of Group VI—VIII Metals.....O. Johnson 1923

An Interstitial-Electron Model for the Structure of Metals and Alloys. V. Metal Alloys and Intermetallic Compounds.....O. Johnson 1929

An Interstitial-Electron Model for the Structure of Metals and Alloys. VI. Interpretation of Superconductivity .....O. Johnson 1935

Dipole Correlation Functions of Non-interacting Symmetric Vib-rotors.....T. Yamashita and H. Shimizu 1940

On the Interaction of Sodium Alkyl Sulfate with Alkylpyridinium Chloride and with Alkyltrimethylammonium Bromide in a Solution.....M. Mitsuishi and M. Hashizume 1946

The Photoconductivity of Poly(*N*-vinylcarbazole). I. The Photoconductivity in a Surface-type Cell..... .....K. Okamoto, S. Kusabayashi, and H. Mikawa 1948

The Photoconductivity of Poly(*N*-vinylcarbazole). II. Dark Conductivity in a Sandwich-type Cell..... .....K. Okamoto, S. Kusabayashi, and H. Mikawa 1953

Lone Pair Ionization Potentials of Carboxylic Acids Determined by He(I) Photoelectron Spectroscopy..... .....I. Watanabe, Y. Yokoyama, and S. Ikeda 1959

Effect of Additives on Thermal Decomposition of Basic Magnesium Carbonate..K. Amita and G. Hashizume 1964

Spectroscopic and Coordination Behavior of α-Cyanothioacetamide.....A. Ray and D. N. Sathyanarayana 1969

A Study of Solute-Solvent Interaction in Solvents of Medium Dielectric Constant from the Apparent Molal Volume Data. I.....R. Gopal, D. K. Agarwal, and R. Kumar 1973

The Bromination of *p*-Nitrophenol in Acetic Acid.....N. Sridhar, J. Rajaram, and J. C. Kuriacose 1977

Neutral Salt Effect on the Interaction of Poly-α,L-glutamic Acid with Acridine Orange..... .....Y. Sato, M. Hatano, and M. Yoneyama 1980

The Structure and Reactivity of Nickel Hydroxide.....M. Sakashita and N. Sato 1983

Crystal Structure of the Potassium Salt of Chloranil....M. Konno, H. Kobayashi, F. Marumo, and Y. Saito 1987

ESR Studies of Stable Free Radical Pairs in the Diamagnetic Matrix Crystal..... .....O. Takizawa, J. Yamauchi, H. Ohya-Nishiguchi, and Y. Deguchi 1991

The Chlorination of Benzene with a Sodium Chloride–Ferric Chloride Melt.....Y. Tamai and Y. Ohtsuka 1996

Water Content on Metal Oxides. I. Water Content on Silica Gel, Magnesium Oxide, Zinc Oxide, and Titanium Dioxide.....T. Morimoto and H. Naono 2000

Energy Transfer in the Radiolysis of Neopentane-Alkane Mixture in the Solid Phase at 77 K..... .....M. Kato, Y. Saitake, T. Miyazaki, and Z. Kuri 2004

Radioactive Iodine Exchange and the Dushman Reaction.....R. Furuichi and H. A. Liebhafsky 2008

The Crystal Structure of Orotic Acid Monohydrate (Vitamin B_{13}).....F. Takusagawa and A. Shimada 2011

The Crystal Structure of Dipicolinic Acid Monohydrate.....F. Takusagawa, K. Hirotsu, and A. Shimada 2020

Deuteron and Niobium-93 Magnetic Resonance Studies of the Nb–D System. Comments on the Effects of Interstitial Impurities.....K. Nakamura 2028

Geometrical Structures of Excited States of Conjugated Molecules. II. The Calculated Vibronic Intensity Distributions in the Absorption Spectra of Naphthalene.....Y. Fujimura, M. Onda, and T. Nakajima 2034

The X-Ray Emission Spectra of the Compounds of Third-period Elements. VI. The Relationship between the *Kα* and *Kβ* Spectra.....Y. Takahashi 2039

Vibrational Assignments of Ethylmethylsilane....M. Hayashi, K. Ohno, and H. Murata 2044

Ionic Equilibria in Mixed Solvents. VIII. Solvent Effects on the Dissociation of Diprotic Acids in Aqueous Methanol Mixtures....H. Ohtaki and M. Maeda 2052

The Triplet Excitons in the Anion Radical Salts of $[(C_6H_5)_3PCH_3]_{1-x}^{+}$ $[(C_6H_5)_3AsCH_3]_x^{+}$ $(TCNQ)_2^{-}$, $(0 \leq x \leq 1)$ ....Y. Suzuki and Y. Iida 2056

The Simultaneous Detection of Gas Phase Atoms and Free Radicals Produced in a Microwave Discharge by ESR Spin Trapping Methods....E. G. Janzen, T. Kasai, and K. Kuwata 2061

Determination of the Molecular Arrangement in Liquid Crystals. A New Method of Determining the Molecular Arrangement in Liquid Crystals by the Use of the Polarization of the Fluorescence.... ....S. Sakagami, A. Takase, M. Nakamizo, and H. Kakiyama 2062

The *G*-values of Nitrogen Obtained from the Gas-phase γ-Radiolysis of Nitrous Oxide–Hydrocarbon Systems.. ....K. Okazaki, R. Yugeta, and S. Sato 2066

Crystal Structure of μ-Peroxo-bis[nitrobis(ethylenediamine)cobalt(III)] Dinitrate Tetrahydrate.... ....T. Shibahara, S. Koda, and M. Mori 2070

Photovoltaic Effect of Aromatic Diamine in Solution....T. Imura, S. Takagi, and K. Kawase 2075

Notes:

The Viscosity *B*-Coefficients of the Anionic Species of Benzoic Acid and Its Monosubstituted Derivatives.... ....M. Yasuda and K. Mizutani 2226

The CNDO-type Molecular Orbital Calculations of MnO_4^{-}, CrO_4^{2-}, PdX_4^{2-}, and PdX_6^{2-}.... ....S. Sakaki and H. Kato 2227

Catalytic Codimerization of Styrene with Lower Olefins by Rhodium and Ruthenium Catalysts.... ....Y. Umezaki, H. Fujiwara, K. Sawara, and S. Teranishi 2230

Polarography of Europium(III)–DL-Tryptophan Complex....S. Lal 2232

The Absolute Configurations and Optical Rotations of (−)-4-Hydroxy-2-pentanone and (−)-2,4-Pentanediol.. ....T. Tanabe 2233

Electronic Properties of the Tautomers of Hydroxysubstituted Purines and Pyrimidines....M. Kamiya 2235

X-Ray Photoelectron Spectra of Copper–Tetracyanoquinodimethane Complexes.... ....I. Ikemoto, J. M. Thomas, and H. Kuroda 2237

A Common Feature in the 2+2 Cycloadditions of Benzyne and $^1\Delta_g$ Molecular Oxygen to Ethylene Derivatives ....S. Inagaki and K. Fukui 2240

The Vibrational Spectra of the Zn–Acrylonitrile Complex....T. Kamo, S. Nagai, and M. Kimura 2242

Interaction between Lone Pair Electrons on the Nitrogen Atoms in 1,5-Diazabicyclo[3.2.1]octane.... ....Y. Hamada, A. Y. Hirakawa, M. Tsuboi, and H. Ogata 2244

Kinetics of the Formation of Hydrogen Peroxide Induced by the Decomposition of the Trioxalatocobaltate(III) in the Presence of Manganese(II) and of Oxygen....M. Kimura and Y. Monma 2246

Analytical and Inorganic

The Emission Spectra of Hexaamminechromium(III) Hexacyanocobaltate(III), $[Cr(NH_3)_6][Co(CN)_6]$.... ....H. Kataoka 2078

Phase Equilibria in the V_2O_3–VO_2 System at High Temperatures.... ....H. Endo, M. Wakihara, M. Taniguchi, and T. Katsura 2087

Analysis of Metals by Solid-Liquid Separation. Spectrophotometric Determination of Cadmium by Extraction of Cadmium Salt of Oxine with Melted Naphthalene....T. Fujinaga, M. Satake, and T. Yonekubo 2090

Reductions of Cobalt(III) Complexes by Iron(II) Chelates. I. The Kinetics and Mechanisms of the Reductions of Acidopentaamminecobalt(III) Complex Ions by Iron(II) Chelates of Nitrilopolycarboxylic Acids.. ....Y. Kurimura 2093

Some β-Diketone Chelate Complexes with Uranium(IV), Thorium(IV) and Cerium(IV). Preparation and IR Spectra....T. Yoshimura, C. Miyake, and S. Imoto 2096

Electron-transfer Kinetics of Transition-metal Complexes in Lower Oxidation States. Part I. Electron Spin Resonance Measurements of the Electron-exchange Rate between $Cr(bipy)_3^{1+}$ and $Cr(bipy)_3$.... ....T. Saji and S. Aoyagui 2101

Studies on Mass Spectrometry of Metal Chelates. I. Mass Spectrometry of Oxine Metal Chelates.... ....Y. Kidani, S. Naga, and H. Koike 2105

Polarographic Study of Monosaccharides in Unbuffered Solution and Its Application to the Determination of the Mutarotation Rate Constants....T. Ikeda and M. Senda 2107

Thermal and Spectrophotometric Studies of 8-Mercaptoquinoline-5-sulfonic Acid and Its Sodium Salt.... ....E. Sekido, J. Tanaka, and Y. Masuda 2112

Stability of Fused Rings in Metal Chelates. X. Structures and Stability Constants of the Copper(II) Complexes of Tripeptides Composed of Glycine and/or β-Alanine..O. Yamauchi, Y. Nakao, and A. Nakahara 2119

The Metal Ammine Cyanide Aromatics Clathrates. XVI. Wide-Line NMR Studies of the Three-Spin Systems of Ligand Ammonia in Paramagnetic Hofmann-type Clathrates....T. Nakano 2124

Cathodic Waves of *o*-Hydroxyphenylmercury Chloride in Aqueous Nitric Acid Medium. Inhibition by Reaction Product and Reduction of Precipitate....T. Murayama and M. Morioka 2129

Studies of Ruthenium Complexes. IV. The Solvent Effect on the Isotopic Ligand-exchange Reaction of the *cis*-Dibromotetraammineruthenium(III) Complex.... ....A. Ohyoshi, T. Shinohara, Y. Hosoyamada, T. Yamada, and Y. Hiroshima 2133

The Synthesis of Some *N,N*-Dialkylselenocarbamate Complexes of Tin(IV), and Their Infrared and PMR Spectra....K. Tanaka, S. Araki, and T. Tanaka 2136

Adducts of Neodymium(III) and Lanthanum(III) Acetylacetonate with Some Bidentate Organic Bases.... ....I. Yoshida, H. Kobayashi, and K. Ueno 2140

Hexaammine, Tris(ethylenediamine), Glycinato, and L-Alaninato Complexes of a Triperiodatotetracobaltate (III) Condensed Anion....T. Ama, J. Hidaka, and Y. Shimura 2145

Polarographic Recudtions of Some Alkali and Alkaline Earth Metal Ions in Dimethylacetamide. Effect of Cation of the Supporting Electrolyte....K. Izutsu, S. Sakura, and T. Fujinaga 2148

Polarography of Ammonium 1-Pyrrolidinecarbodithioate and Ammonium 2-Carboxy-1-pyrrolidinecarbodithioate at the Dropping Mercury Electrode....T. Kitagawa and K. Taku 2151

Note:

A Potentiometric Study on Complex Formation of Oxovanadium(IV) with Malonic Acid.... ....S. Ito, H. Tomiyasu, and H. Ohtaki 2238

Organic and Biological

Reactions of *N*-Sulfinylamines with Carbodiimides....T. Minami, M. Fukuda, M. Abe, and T. Agawa 2156

Ferricyanide Oxidation of 4-Arylazo-2,6-di-*t*-butylphenols....E. Manda 2160

Selective Formations of Several Carboxylic Acids by Carbonylation in the $SbCl_5$–Liquid Sulfur Dioxide System ....M. Yoshimura, M. Nojima, and N. Tokura 2164

The Mass Spectra of 3-Aryl-5-chloromethyl-1,2,3-oxathiazolidine-2-oxides....T. Nishiyama and F. Yamada 2166

Synthesis and Biological Activity of Peptides Related to Eledoisin. III. *C*-Terminal Hexapeptide Amides Modified in Methionine and Isoleucine Residues....H. Sugano 2168

The Synthesis of γ-3,4,5,6-Tetrachlorocyclohexene (γ-BTC) by Means of a Diels-Alder Reaction..K. Shinoda 2174

The Formation of Tin-Nitrogen Ponds. V. The Selective 1-Substitution Reaction of Tetrazoles by the Reaction of 5-Substituted 2-(Tri-*n*-butylstannyl)tetrazoles with Methyl Iodide, Methyl *p*-Toluenesulfonate, Dimethyl Sulfate, and Ethyl Bromoacetate..T. Isida, T. Akiyama, K. Nabika, K. Sisido, and S. Kozima 2176

A Study on the Photochemistry of α,β-Unsaturated γ-Lactones. II. Photoisomerization of 3-Ethylidene-4,5-dihydro-2(3*H*)-furanone....K. Ohga and T. Matsuo 2181

Syntheses of Organic Phosphates. III. Syntheses and Properties of 2-Amino-3-pyridylmethyl and 2-Chloro-3-pyridylmethyl Phosphates....Y. Murakami, J. Sunamoto, S. Kinuwaki, and H. Honda 2187

Chemical Studies on the Mistletoe. II. The Structure of Viscumamide, a New Cyclic Peptide Isolated from *Viscum album* Linn. *var. coloratum* Ohwi....Y. Okumura and A. Sakurai 2190

Crystal and Molecular Structure of ω-Amino Acids, ω-Aminosulfonic Acids and Their Derivatives. III. The Crystal and Molecular Structure of γ-Guanidino-β-hydroxypropane Sulfonic Acid.... ....Y. B. Kim, A. Wakahara, T. Fujiwara, and K. Tomita 2194

Crystal and Molecular Structure of ω-Amino Acids, ω-Amino Sulfonic Acids and Their Derivatives. IV. The Crystal and Molecular Structure of γ-Aminobutyric Acid (GABA), a Nervous Inhibitory Transmitter.... ....K. Tomita, H. Higashi, and T. Fujiwara 2199

The Electrochemical Fluorination of Benzenes and Pyridines ..... Y. Inoue, S. Nagase, K. Kodaira, H. Baba, and T. Abe 2204

Autoxidation of Trimethyl Phosphite Initiated by One-Electron Transfer from Phosphite to Quinones ..... Y. Ogata and M. Yamashita 2208

The Oxidative Coupling of Alkyl Aryl Ketones by Iron(III) Chloride ..... H. Inoue, M. Sakata, and E. Imoto 2211

Reactions of Phenylhydrazinium Thiocyanate with Ketones and Aldehydes ..... I. Arai 2215

Peptides. IV. Racemization Suppression by the Use of Ethyl 2-Hydroximino-2-cyanoacetate and Its Amide ..... M. Itoh 2219

Studies of Enamines. III. The Reaction of 4-(1-Piperidyl)- and 4-(1-Pyrrolidinyl)-3-penten-2-ones with Aryl Isothiocyanates ..... O. Tsuge and A. Inaba 2221

Notes:

A Facile, Stereospecific Preparation of Olefins from Pinacols ..... T. Hiyama and H. Nozaki 2248

The Catalytic Decomposition of 6-Diazofluorene by Metal Carboxylates ..... T. Shirafuji, K. Kitatani, and H. Nozaki 2249

The Carbonylation of Furan and Thiophene Mercuric Compounds with Palladium Salt ..... T. Izumi, T. Iino, and A. Kasahara 2251

Photochemical Reactions of Some Thiocarbonyl Trimers ..... T. Nishio, M. Yoshioka, H. Aoyama, and N. Sugiyama 2253

Oxosulfonium Salts. II. Nitration of Dimethylphenyloxosulfonium Salt ..... K. Kamiyama, H. Minato, and M. Kobayashi 2255

$N^2 \rightarrow N^1$ Migration of *s*-Triazinyl Group in the Reaction of N^1-Acetyl-N^2-(*s*-triazinyl)alkylenediamines ..... S. Uno, K. Nakamura, Y. Inoue, S. Sekiguchi, and K. Matsui 2257

Effect of Crown Ether in the Reduction of Ketones with Sodium Borohydride in Aromatic Solvent ..... T. Matsuda and K. Koida 2259

Synthetic Studies of Carbohydrate Derivatives with Photochemical Reaction. VIII. Photochemical Desulfurization of Some Sugar Diethyl Dithioacetal Acetates into the Corresponding 1-*S*-Ethyl-1-thioalditol Acetates ..... K. Matsuura, Y. Araki, and Y. Ishido 2261

Three-Membered Ring-formation Reactions. V. The Cyclopropane Derivative Obtained from the α-Halogenoacrylic Ester by Means of Zinc Alkyl–Active Methylene Chelate Compounds ..... Y. Kawakami and T. Tsuruta 2262

The Light Resistance of the Complex Salts of Flavones and Flavonols ..... M. Kaneta and N. Sugiyama 2265

No. 8

General and Physical

Application of the RRKM Theory to Energized Ethylene Formed in the Vacuum-ultraviolet Photolysis of *n*-Paraffins ..... H. Akimoto, K. Obi, and I. Tanaka 2267

Measurement of Negative Ions Formed by Electron Impact. IX. Negative Ion Mass Spectra and Ionization Efficiency Curves of Negative Ions of *m/e* 25, 26, 27, 38, 39, 40 and 50 from Acrylonitrile ..... S. Tsuda, A. Yokohata, and T. Umaba 2273

Improvement of Zone Melting Apparatus. I. Zone Melting Apparatus with a Device to Prevent Breakage of a Sample Tube ..... N. I. Wakayama, Y. Nakano, and Y. Mashiko 2277

ESR Studies on Radical Anions of Calicene Derivatives ..... S. Konishi, S. Niizuma, H. Kokubun, and M. Koizumi 2279

Bond Distortions and Related Phenomena in *Peri*-Condensed Tetracyclic Nonbenzenoid Aromatic Hydrocarbons ..... A. Toyota and T. Nakajima 2284

Time-Resolved Fluorescence Studies on the Dual Fluorescence Process of *p*-(Dimethylamino)benzonitrile ..... N. Nakashima, H. Inoue, N. Mataga, and C. Yamanaka 2288

Mass Spectrometric Study of the Primary Processes in Photochemical Reactions. I. Photodecomposition of 1,1′-Azopropane ..... S. Yamashita and T. Hayakawa 2290

The Crystal Structure of Dinicotinic Acid ..... F. Takusagawa, K. Hirotsu, and A. Shimada 2292

The Molecular and Crystal Structure of the Cyclic Pentamer of Formaldehyde, 1,3,5,7,9-Pentoxecane ..... Y. Chatani and K. Kitahama 2300

Magnetic Susceptibilities of Solid Oxygen-Argon Mixtures ..... Y. Mori, A. Sakakibara, and H. Inokuchi 2305

Thermoluminescence from the UV-Irradiated Solution of Triphenylmethane at Low Temperature ..... N. Yamamoto, M. Matsumura, and H. Tsubomura 2307
Molecular Structure of Ethane. Comparison of the Structure Parameters of CH_3CD_3 in the Torsionally Excited State and in the Ground State ..... T. Iijima 2311
Microwave Spectrum of Arsenic Trifluoride in the Excited Vibrational State ..... T. Chikaraishi and E. Hirota 2314
Transmission of Substituent Effects through the Oxygen and Sulfur Atoms. IV. CNDO/2 Charge Distributions in Vinyl and Divinyl Ethers and Sulfides ..... O. Kajimoto, M. Kobayashi, and T. Fueno 2316
Nuclear Quadrupole Effects in the Microwave Spectrum and Dipole Moment of Aniline ..... A. Hatta, M. Suzuki, and K. Kozima 2321
The Photoconductivity of Poly(*N*-vinylcarbazole). III. Photoconductivity in a Sandwich-type Cell. ..... K. Okamoto, S. Kusabayashi, and H. Mikawa 2324
The Vibrational Assignments of Propyl Bromide and Its Two Asymmetrically-Deuterated Species ..... M. Hayashi, K. Ohno, and H. Murata 2332
Studies of the Preparation and Physical Properties of Multivalent Metal Condensed Phosphates. V. The Grinding of Various Aluminum Phosphates ..... M. Tsuhako, I. Motooka, and M. Kobayashi 2343
The Electron-scavenging Process in 3-Methylhexane Glass at 77 K Studied by ESR ..... K. Oka, H. Yamazaki, and S. Shida 2347
Modified CNDO/2 Calculations of Ionization Potentials for Some Unsaturated Hydrocarbons ..... K. Ohno, T.Hirooka, Y. Harada, and H. Inokuchi 2353
Kinetic Studies of the Solvent Extraction of Metal Complexes. II. The Rate of the Extraction of Iron(III) with Thenoyltrifluoroacetone into Carbon Tetrachloride ..... T. Sekine, J. Yumikura, and Y. Komatsu 2356
Variational Calculation of Atoms and Molecules by a Modified Hassé Method Using Hulthén Functions. III. Long-range Interactions between Hydrogen Atom and Proton and between Two Hydrogen Atoms ..... T. Yamabe, S. Ishimaru, and K. Fukui 2361
Distribution of Uranyl Nitrate between 1- or 2- Butanol and Aqueous Phases ..... N. Yui, Y. Kurokawa, and T. Fujita 2369
The Crystal Structure of Quinolinic Acid ..... F. Takusagawa, K. Hirotsu, and A. Shimada 2372
Studies on Intermolecular Complex Formation. III. Crystal Structure of Thymine-*N*,*N*-Diethylmelamine Complex Monohydrate ..... C. Tamura, T. Hata, and S. Sato 2380
Studies on Intermolecular Complex Formation. IV. Crystal Structure of Cytosine-Resorcylic Acid 2 : 1 Complex Monohydrate ..... C. Tamura, S. Sato, and T. Hata 2388
Optical and Magnetic Studies of $CuSeO_3 \cdot 2H_2O$ Based on the Refined Crystal Structure ..... T. Asai and R. Kiriyama 2395

Notes:

The Simulation Analysis of Dipeptide Hydrolysis Catalyzed by Divalent Metal Ions ..... K. Ohkubo and H. Sakamoto 2579
CNDO/2 Calculation of the Valence Electron Contribution to the Intermolecular Potential of Some Ground State Closed Shell Molecules ..... M. Hashimoto and T. Isobe 2581
Circular Dichroic Evidence for the Cholesteric Phase in Solid Films of Poly-γ-methylglutamate ..... T. Tachibana and E. Oda 2583
Studies on Microcapsules. XV. Electrophoretic Behavior of Carboxylated Polyphthalamide Microcapsules Containing Aqueous Solutions of Polyelectrolytes ..... M. Shiba, S. Tomioka, and T. Kondo 2584
ESR of Hot Ions: Ni(I) Complex Ions Produced in Ni(II) Complexes by γ-Irradiation ..... C. Amano, T. Watanabe, and S. Fujiwara 2586
The Structure of Ordered β V_2D as Determined by Means of the Deuteron Magnetic Resonance ..... K. Nakamura 2588
Model Complexes of Catalyzers for Asymmetric Hydrogenation. I. Crystal Structure of β-Cyanoethyl(D(—)-*erythro*-1,2-diphenyl-2-hydroxyethylamine)bis(dimethylglyoximato)cobalt ..... Y. Ohashi, Y. Sasada, Y. Tashiro, Y. Ohgo, S. Takeuchi, and J. Yoshimura 2589
ESR and Optical Spectra of Ion Radicals of Some Triptycene Derivatives ..... F. Tanaka and N. Mataga 2591
The Catalytic Oxidation of Hydrogen on Zirconium Dioxide ..... T. Hamamura, Y. Onishi, and Y. Iizuka 2592
The Crystal Structure of Rb(TCNQ)-II ..... I. Shirotani and H. Kobayashi 2595
Fluorescence Lifetime of Pyrene in Different Solvents ..... A. Nakajima 2602
The Crystal and Molecular Structure of *trans*-2,2'-Dichloroazobenzene ..... M. Komeyama, S. Yamamoto, N. Nishimura, and S. Hasegawa 2606

Analytical and Inorganic

A New Method for the Precise Measurement of the Polarographic Current and Its Application in Digital Polarography ..... S. Sakurai, H. Shirai, and E. Niki 2402
Investigation on Low-spin Cobalt(II) Complexes. III. Structural, Optical and Magnetic Properties of Five-coordinate Complexes ..... Y. Nishida and H. Shimohori 2406
Metal Complexes Containing Six-membered Chelate Rings. III. Preparation and Structure of Mono- and Bis-(2,4-pentanediamine)cobalt(III) Complexes Containing Acetylacetonato or Oxalate Ion ..... F. Mizukami, H. Ito, J. Fujita, and K. Saito 2410

Racemization and Isotopic Exchange of Tris(acetylacetonato)silicon(IV) Perchlorate in Organic Solvents .... T. Inoue and K. Saito 2417
Heterocyclic Azomethine Compounds and Their Reduction Products as Analytical Reagents. I. Syntheses and Acid Dissociation Constants of Picolinaldehyde 2-Hydroxyanil and Its Derivatives and Their Reactions with Metal Ions .... M. Otomo and K. Kodama 2421
The Crystal Structure of $(-)_{589}$-Acetylacetonatobis(trimethylenediamine)cobalt(III) Arsenic(V) (+)-Tartrate Monohydrate .... K. Matsumoto, H. Kawaguchi, H. Kuroya, and S. Kawaguchi 2424
Absorption Band in the Near-Ultraviolet Region Observed for Binuclear Copper(II) Complexes .... S. Kida, Y. Nishida, and M. Sakamoto 2428
Studies of the Ruthenium(III) Complex. V. Aquation and Anation Reactions of Halogenoacetatopentaammineruthenium(III) Complexes in Aqueous Solutions .... A. Ohyoshi, S. Shida, S. Izuchi, F. Kitagawa, and K. Ohkubo 2431
Kinetic Studies of Thermal Decomposition Reactions of Amminechromium(III) Complexes in Solid State .... K. Nagase and N. Tanaka 2435
Metal Chelates of Aromatic *o,o'*-Dihydroxyazo Compounds. I. The Fluorescence Properties of the Metal Chelates of *o,o'*-Dihydroxyazobenzene and Their Use in Fluorometry .... K. Hiraki 2438
The Infrared Spectra and Normal Coordinate Treatments of X_3M–$Mn(CO)_5$ (X=Cl, Br, and I; M=Si, Ge, and Sn). II. .... S. Onaka 2444
Kinetic Studies of the Nickel Phthalate Complex Formation in Solution by the Pressure-jump Method .... S. Harada, H. Tanabe, and T. Yasunaga 2450
The Liquid Membranes of the Thiocyanate Ion-Sensitive Electrode .... N. Ishibashi and K. Kina 2454
The pH-dependent Variation of the Absorption and Circular Dichroism Spectra in Some Ternary Mixed Complexes of Copper(II) Containing Diethylenetriamine and Optically Active Amino Acids .... T. Murakami, T. Nozawa, and M. Hatano 2456
A Kinetic Study of the Ligand Substitution Reaction of Tetramethylenediaminetetraacetatocobaltate(II) with Trimethylenediaminetetraacetate .... H. Ogino, T. Watanabe, J.-J. Chung, and N. Tanaka 2460
Binuclear Metal Complexes. VII. Preparation and Properties of Binuclear Copper(II) and Nickel(II) Complexes of Hydrogen-bridged Macrocycles .... H. Okawa, T. Tokii, Y. Muto, and S. Kida 2464
The Chemical Structure of Glass of the $NaPO_3$–Sb_2O_4 System .... M. Watanabe 2468

Note:
Rapid and Sensitive Atomic-absorption Determination of Arsenic by Arsine–Argon–Hydrogen Flame System with the Use of a Zinc Powder Tablet as Reductant .... Y. Yamamoto, T. Kumamaru, Y. Hayashi, and T. Kamada 2604

Organic and Biological

Photochemical Reduction of *p*-Quinones with Hydrogen Donors Studied by CIDNP Technique .... K. Maruyama, T. Otsuki, A. Takuwa, and S. Arakawa 2470
Structural Studies of Tryptophan Metabolites of X-Ray Diffraction Method. I. The Crystal and Molecular Structure of 5-Hydroxy-DL-tryptophan .... A. Wakahara, M. Kido, T. Fujiwara, and K. Tomita 2475
Structural Studies of Tryptophan Metabolites by X-Ray Diffraction Method. II. The Crystal and Molecular Structure of Tryptamine Hydrochloride .... A. Wakahara, T. Fujiwara, and K. Tomita 2481
Photochemical Reaction of Diaryl Thioketones in Ethereal Solutions. A Stable Transient Free-Radical .... N. Kito and A. Ohno 2487
Palladium-Catalyzed Coupling Reaction of Aromatic Compounds .... H. Yoshimoto and H. Itatani 2490
Studies on Carbamoylation Reactions of Polyethylenimine and Its Low Molecular Weight Analogues with Cyanate Ions .... T. Okubo and N. Ise 2493
Studies on the Synthesis of Furan Compounds. XXX. Syntheses and Steric Configurations of 3-(5-Nitro-2-furyl)-2-(5-bromo-2-furyl)acrylic Acid and Its Related Compounds .... I. Hirao, Y. Kato, and S. Kozakura 2498
Oxidation of *p*-Tolyl Triphenylmethylhydrazo Sulfone .... M. Kojima, N. Kamigata, H. Minato, and M. Kobayashi 2501
Photochemical Reactions of Enamino Ketones .... K. Yamada, T. Konakahara, and H. Iida 2504
The Prins Reaction of Cyclooctene and Cyclododecene .... A. Uchida. T. Maeda, and S. Matsuda 2512
The Synthesis and the Configuration of 3-Aminotetrahydrothiophene-3-carboxylic Acids .... M. Hatanaka and T. Ishimaru 2515
Syntheses of Isomaltose, Isomaltotetraose, and Isomaltooctaose .... S. Koto, T. Uchida, and S. Zen 2520
Electrochemical Fluorination of Diols and Heterocyclic Compounds .... T. Abe, S. Nagase, and H. Baba 2524
Intramolecular Interaction between the Phenol and the Indole Chromophores .... T. Tamaki 2527
Anodic Ring Opening Reaction of 2-Methoxy-1-cyclopentene-1-carboxylic Acids .... S. Torii, H. Tanaka, T. Fukuoka, and S. Hirai 2534
Synthetic Studies of Carbohydrate Derivatives with Photochemical Reactions. IX. The Photochemical Addition of 1,3-Dioxolane to Several Enoses .... K. Matsuura, K. Nishiyama, K. Yamada, Y. Araki, and Y. Ishido 2538
Crystal and Molecular Structure of ω-Amino Acids, ω-Aminosulfonic Acids and Their Derivatives. V. Crystal and Molecular Structure of γ-Guanidino Propane Sulfonic Acid .... Y. B. Kim, A. Wakahara, T. Fujiwara, and K. Tomita 2543

Effects of *N*-Acyl- and *N*-*s*-Triazinyl Groups on the Rearrangement of *S*-(*s*-Triazinyl)-2-aminothiophenols and *O*-(*s*-Triazinyl)-2-aminophenols ..... T. Shiojima, T. Kuroda, S. Ohkawa, Y. Hasegawa, and K. Matsui 2549

Reactions of Diphenylphosphinothioyl Isothiocyanate and Related Compounds with Some Nucleophiles and Carbodiimides ..... I. Ojima, K. Akiba, and N. Inamoto 2559

Synthesis of Carbocyclic Adenosine Analogs: 9-(2′,3′,4′,5′-Tetrahydroxycyclopentyl)adenines ..... T. Suami, S. Nishiyama, K. Tadano, and F. W. Lichtenthaler 2562

Syntheses of Decadiendiyndials and Tetradecatetraendiyndials and Intramolecular Cyclization of Former Dialdehydes ..... R. Muneyuki, M. Morimoto, M. Tanaka, T. Katakami, T. Kashitani, M. Iyoda, and M. Nakagawa 2565

Chemical Evidence for the Existence of $p\pi$-$d\pi$ Interaction between the Unsaturated Bond and the Sulfur Atom in Allyl and Vinyl Sulfide Systems ..... I. Ojima and K. Kondo 2571

Notes:

Elimination Reactions of Propylene Chlorohydrins over Solid Acids ..... Y. Anju, I. Mochida, A. Kato, and T. Seiyama 2593

Polymerization of Methyl Methacrylate with the Chlorocarbonylbis(triphenylphosphine)rhodium(I)–Organic Halides System ..... N. Kameda and N. Itagaki 2597

The Polymerization of Vinyl Monomers in the Presence of Surface-active Agents. V. The Copolymerization of Methyl Methacrylate with Styrene ..... Y. Arita, S. Shiraishi, M. Seno, and T. Asahara 2599

Rearrangement of 2-Aryloxybenzazoles ..... T. Nagai, Y. Fukushima, T. Kuroda, H. Shimizu, S. Sekiguchi, and K. Matsui 2600

Derivatives of 1,2-Dithiole-3-thione. II. Thermal Rearrangement of Iminothiocarbonyl Compounds ..... S. Tamagaki, K. Sakaki, and S. Oae 2608

The Oxidation of α- and β-Methylstyrenes by Manganese(III) Acetate ..... A. Kasahara, R. Saito, and T. Izumi 2610

The Synthesis of the Salts of L-Aspartic Anhydride with Alkylsulfuric Acid and Their Use in the Preparation of Aspartylphenylalanine Methyl Ester ..... Y. Ariyoshi, T. Yamatani, and Y. Adachi 2611

Applied

An X-Ray Study of Coal Tar Pitch ..... M. Shiraishi and K. Kobayashi 2575

No. 9

General and Physical

The Photoconductivity of Poly(*N*-vinylcarbazole). V. The Doping Effects of Various Materials on the Photoconductivity ..... K. Okamoto, S. Kusabayashi, and H. Mikawa 2613

Some Doping Effects on the Semiconducting Properties of Gd_2CuO_4 ..... T. Kenjo and S. Yajima 2619

Kinetic Study of Triplet-Triplet Energy Transfer in Fluid Solution by Means of Laser Pulse Photolysis ..... T. Takemura, H. Baba, and M. Fujita 2625

Studies of the DNA-Acridine Complexes. I. Fluorescence Depolarization ..... Y. Kubota 2630

Near-infrared Spectroscopic Studies of the States of Water in Lyotropic Liquid Crystals ..... M. Aizawa and S. Suzuki 2634

Emission Spectra of Benzene, Toluene, and Xylenes by Controlled Electron Impact ..... T. Ogawa, M. Tsuji, M. Toyoda, and N. Ishibashi 2637

A Theoretical Consideration of the Electron-scavenging Process in Liquid Hydrocarbons. IV. Integral Transforms in the Prescribed Diffusion Approximation ..... H. Yamazaki and K. Shinsaka 2642

Mechanism of Hydrogenolysis. III. Thermal Hydrogen Exchange and Demethylation of Toluene-2-d_1, -3-d_1 and -4-d_1 ..... Y. Sato and A. Amano 2646

Simulation Analysis of the Acid-catalyzed Hydrolysis of Carboxylatopentammineruthenium(III) Complexes ..... K. Ohkubo, H. Sakamoto, F. Kitagawa, and A. Ohyoshi 2651

Emission Processes in Cadmium Photosensitization ..... S. Tsunashima, T. Toyono, and S. Sato 2654

Relationship between Self-Diffusion and Interdiffusion in Gaseous Systems ..... H. Hirakawa, Y. Kamei, M. Sugisaki, and Y. Oishi 2659

Charge Transfer in Acetonitrile–Halogen Complexes ..... H. Negita, K. Shibata, Y. Furukawa, and K. Yamada 2662

Variations of Heat of Immersion of Ferric Oxyhydroxides in Water with Structural Changes by Heating..... T. Ishikawa and K. Inouye 2665

The Crystal Structure of Cinchomeronic Acid..... F. Takusagawa, K. Hirotsu, and A. Shimada 2669

X-Ray Analysis of the Domain Structure of the 1:1 Complex of Carbazole–TCNQ..... H. Kobayashi 2675

Solubilization Behavior of the Surfactant–Polyethylene Glycol Complex in Relation to the Degree of Polymerization..... F. Tokiwa and K. Tsujii 2684

The Contact-term Contributions to Lanthanide-induced ^{13}C Paramagnetic Shifts in Acridine, Quinoline, and Isoquinoline..... M. Hirayama and Y. Hanyu 2687

The Microwave Spectrum and Quadrupole Coupling Constant Tensor of Bromomethylsilane..... M. Hayashi and K. Kuwada 2691

Charge Transfer Interaction between the Cation Radicals of Some Aromatic Diamines and Triethylamine..... T. Sakata, T. Okai, H. Sugimoto, and H. Tsubomura 2698

An Experimental Study of Gibbs-Donnan Membrane Equilibria across Permselective Membranes Which Involve the Ions of Strong Inorganic Electrolytes..... R. Tamamushi 2701

Conformation of Poly(*S*-benzyl-L-cysteine) in Solution..... H. Maeda, T. Inoue, M. Tsunoda, and S. Ikeda 2708

Counterion Effect on the Titration Behavior of Poly(maleic acid)..... N. Muto, T. Komatsu, and T. Nakagawa 2711

Solvent Effect in Electron Spin Resonance Spectra and Electrochemical Reaction of Substituted Nitrobenzene Anion Radicals..... T. Fujinaga, Y. Deguchi, and K. Umemoto 2716

Studies on Fragment Ion Distribution and Reactions with the Use of a Charge Spectrometer. IV. Dependence of Cross Sections of Some Ion-Molecule Reactions on the Kinetic Energy of Ions..... T. Nagatani, K. Yoshihara, and T. Shiokawa 2721

The Magnetic Properties of Manganese(II) Phthalocyanine..... H. Miyoshi, H. Ohya-Nishiguchi, and Y. Deguchi 2724

The Magnetic Properties of Verdazyl Free Radicals. III. The Anomalous Magnetic Behavior of Symmetrical Triphenylverdazyl..... N. Azuma, J. Yamauchi, K. Mukai, H. Ohya-Nishiguchi, and Y. Deguchi 2728

Interaction of Bovine Serum Albumin with Detergent Cations..... S. Kaneshina, M. Tanaka, T. Kondo, T. Mizuno, and K. Aoki 2735

Ultrasonic and Thermodynamic Studies on the Aqueous Solutions of Tetramethylurea..... K. Sasaki and K. Arakawa 2738

Kinetic Studies of Photosensitized Oxidation through Semioxidized Eosine in an Aqueous Solution..... Y. Usui and H. Enokido 2741

Studies of Photochemical Reactions Using Organic Photosensitizers. III. Direct Photolysis and Biacetyl-photosensitized Decomposition of Azopropanes..... S. Yamashita, K. Okumura, and T. Hayakawa 2744

Crystal Structure and Absolute Configuration of (−)-2,2′-Bisbromomethyl-1,1′-binaphthyl..... K. Harata and J. Tanaka 2747

Infrared Absorption Intensities of Torsion-Rotation Transitions of Molecules with Symmetric Internal Rotor..... H. Sugeta and T. Miyazawa 2752

Studies on the Interactions of 1-Substituted 2,4-Dinitrobenzenes with Hydroxide Ion in Aqueous Dimethyl Sulfoxide by Means of the Rapid Scan Spectrophotometer..... Y. Hasegawa and T. Abe 2756

H^+ Ion Equilibria in Solutions of Copolypeptides of L-Lysine and L-Aspartic Acid and of L-Lysine and L-Glutamic Acid..... M. Atreyi and R. C. Gupta 2795

Notes:

Evaluation of Diffusion Coefficients of Myosins from Sedimentation Boundary Curve..... M. Yokoyama, A. Ohmoto, and Y. Miyazawa 2869

Radiolysis of Ammonia..... K. Hamanoue and J. Okamoto 2871

Solubilization of TCNQ by Anionic Surfactants..... S. Muto, Y. Aono, and K. Meguro 2872

The Chlorine Nuclear Quadrupole Resonance of Several Oxygen-chlorine Bonds..... T. Okuda, Y. Furukawa, K. Yamada, and H. Negita 2873

The ESR Spectra of Alkyl Radicals Formed in UV-irradiated Trialkyl Phosphate Glasses..... M. Sato, T. Katsu, Y. Fujita, and T. Kwan 2875

Reactions of ^{82}Br Activated by Isomeric Transition in CH_4: A Re-Evaluation..... R. W. Helton, D. W. Oates, and E. P. Rack 2877

Nuclear Quadrupole Resonance of Nitrogen-14 in the Naphthalene–Tetracyanoethylene Complex.....S. Onda, R. Ikeda, D. Nakamura, and M. Kubo 2878

Phase Transition in Organic Semiconductor. Entropy Change Due to Conduction Carriers.....Y. Iida 2880

Carbon-13 NMR Spectra of 1-Arylpropynes and 1-Arylpropenes. Transmission of the Electronic Effects of Substituents through Carbon-Carbon Triple and Double Bonds..K. Izawa, T. Okuyama, and T. Fueno 2881

The Phtoconductivity of Poly(*N*-vinylcarbazole). IV. The Photoconductivity of Copolymers of *N*-Vinycarbazole with Styrene, Vinyl Acetate, and *N*-Vinylpyrrolidone.....K. Okamoto, K. Kato, K. Murao, S. Kusabayashi, and H. Mikawa 2883

Analytical and Inorganic

A Study of Complex Formation by the Cation Exchange Method. Bivalent Metal Complexes with Univalent Anions.....E. Ohyoshi 2758

Distribution of Alkali Metal Picrates between Water and Methyl Isobutyl Ketone.....T. Iwachido 2761

ESR of Copper(II) Complexes in Magnetically Non-dilute Crystals. I. Single Crystals of Bis(L-alaninato)copper(II).....H. Yokoi and S. Ohsawa 2766

The Electrochemical Behavior of the Low-valent Transition Metal Complexes. II. Iron(0)-2,2'-Bipyridine Complexes.....A. Misono, Y. Uchida, M. Hidai, T. Yamagishi, and H. Kageyama 2769

Ion-selective Electrodes Sensitive to Some Organic Compounds Used as Drugs.....K. Kina, N. Maekawa, and N. Ishibashi 2772

Kinetics and Mechanisms of the Reactions of Ce(IV) and Co(III) with Variamine Blue, [*N*-(*p*-Methoxyphenyl)-phenylenediamine], in Aqueous Perchlorate Media.....T. Imamura and M. Fujimoto 2774

Isotopic Exchange Kinetics between Dibenzoylmethane-^{14}C and Its Tris-type Complex with Aluminium(III) in Tetrahydrofuran.....K. Matsuzawa (née Masuda) and K. Saito 2777

Notes:

The Condensation of Orthophosphates with Acid Anhydrides....M. Watanabe, H. Usami, and M. Sugase 2885

Some Palladium Complexes Containing a Benzoyl Group.....K. Suzuki and M. Nishida 2887

The Hydrolysis of Y^{3+}, La^{3+}, Gd^{3+}, and Er^{3+} Ions in Heavy Water.....T. Amaya, H. Kakihana, and M. Maeda 2889

Electrocatalytic Chemistry of the Transition Metal Complexes. III. Dehydrogenation of Cyclohexadienes Catalyzed by the Electroreduced Cobalt Complex of $\alpha,\beta,\gamma,\delta$-Tetraphenylporphine.....H. Kageyama, M. Hidai, and Y. Uchida 2901

Organic and Biological

Catalysis of Manganese Salts in the Autoxidation of Cyclohexanone.....Y. Kamiya and M. Kotake 2780

Photochemical Reactions of Uranyl Ions with Organic Compounds. V. Effects of Temperature and Solvent on the Photooxidation of Alcohols.....S. Sakuraba, S. Mimura, and R. Matsushima 2784

Kinetics of the Oxidation of Ascorbic Acid by the Copper(II) Ion in an Acetate Buffer Solution.....K. Hayakawa, S. Minami, and S. Nakamura 2788

Catalytic Function of Metal Chelates in the Hydration of 2-Pyridinecarbonitrile.....K. Watanabe, S. Komiya, and S. Suzuki 2792

The Reaction of Nitriles under High Pressure. II. The Catalytic Effects of Amines and Water on the Formation of Trisubstituted 1,3,5-Triazines from Nitriles..M. Yasumoto, K. Yanagiya, and M. Kurabayashi 2798

The Reaction of Nitriles under High Pressure. III. The Cyclotrimerization of Aliphatic Nitriles in the Presence of Alcohols and the Rearrangement of the Resulting Trialkyl-1,3,5-triazines to 4-Aminopyrimidines.....K. Yanagiya, M. Yasumoto, and M. Kurabayashi 2804

The Reaction of Nitriles under High Pressure. IV. The Replacement of the Substituents of Trialkyl-1,3,5-triazines.....K. Yanagiya, M. Yasumoto, and M. Kurabayashi 2809

Kinetic and NMR Spectroscopic Studies of the Fusion Reactions of Chloropurines with 1,2,3,5-Tetra-*O*-acetyl-D-ribofuranoses.....A. Hosono, K. Fujii, T. Tada, H. Tanaka, Y. Ohgo, Y. Ishido, and T. Sato 2814

Oxidative Additions of Alkyl Halides to Palladium(0) Carbonyl Complex.....K. Kudo, M. Sato, M. Hidai, and Y. Uchida 2820

Linear Conjugated Systems Bearing Aromatic Terminal Groups. XII. Syntheses and Electronic Spectra of α,ω-Di-2-pyrenyl- and α,ω-Di-2-fluorenylpolyenes ..... Y. Takeuchi, A. Yasuhara, S. Akiyama, and M. Nakagawa 2822

Linear Conjugated Systems Bearing Aromatic Terminal Groups. XIII. Syntheses of α-(*p*-Methoxyphenyl)-ω-(*p*-nitrophenyl)polyenes ..... Y. Takeuchi, S. Akiyama, and M. Nakagawa 2828

Linear Conjugated Systems Bearing Aromatic Terminal Groups. XIV. On the Electronic Spectral Regularity of α,ω-Diarylpolyenes ..... S. Akiyama, Y. Takeuchi, A. Yasuhara, M. Nakagawa, and K. Nishimoto 2830

Stereospecific and Stereoselective Reactions. II. Preparation of Esters of *N*-Phthaloyl-α-amino Acid from Esters of α-Hydroxy Acid ..... M. Wada, T. Sano, and O. Mitsunobu 2833

Synthesis of Pyrimidines and Condensed Pyrimidines ..... S. Kobayashi 2835

New Furanoeremophilane Derivatives from *Farfugium japonicum* Kitamura ..... H. Nagano, Y. Tanahashi, Y. Moriyama, and T. Takahashi 2840

Transylidations of Stable Sulfonium Ylids ..... H. Matsuyama, H. Minato, and M. Kobayashi 2845

Synthesis and Substitution of 1,3,4,6-Tetra-substituted-3,6-dihalogeno-2,5-piperazinediones ..... J. Yoshimura, Y. Sugiyama, and H. Nakamura 2850

Crystal and Molecular Structure of ω-Amino Acids, ω-Aminosulfonic Acids and Their Derivatives. VI. The Crystal and Molecular Structure of DL-γ-Amino-β-hydroxybutyric Acid (GABOB), A Nervous Inhibitory Chemical Transmitter ..... K. Tomita, M. Harada, and T. Fujiwara 2854

Restricted Rotation Involving the Tetrahedral Carbon. VII. Rotation About the Carbon–Group IV Single Bond ..... F. Suzuki, M. Ōki, and H. Nakanishi 2858

The Anionic Polymerization of *n*-Butyraldehyde Azine ..... M. Kamachi and S. Murahashi 2890

The Synthesis of 4,5-Di(furyl)-2,7-octanedione by the Electrolysis of 4-(2-Furyl)-3-buten-2-one ..... H. Satonaka, Z. Saito, and T. Shimura 2892

Formation of Trithiocarbonate by the Reaction of 2,2-Diphenylethylene-1-sulfonamide and Carbon Disulfide ..... K. Hasegawa, T. Sasaki, and S. Hirooka 2894

A Copper(II) Complex of 1,1′-Diacetylferrocene Bis(thiosemicarbazone) ..... Y. Omote, R. Kobayashi, and N. Sugiyama 2896

Reactions of Diazoacetophenones in the Presence of Metal Chelates. V. Reaction of *o*-Methoxy-α-diazoacetophenone ..... T. Ibata, K. Ueda, and M. Takebayashi 2897

Syntheses are Reactions of Metal Organics. VIII. The Formation of 2,5-Piperazinediones from Metal Alkoxides and α-Amino Acids ..... N. Yoshino and T. Yoshino 2899

Syntheses and Properties of *m,m′*-Polymethylenebiphenyls ..... K. Yamamoto, Y. Naito, Y. Tanaka, and M. Nakazaki 2900

Catalytic Activities of Salicylaldehyde Derivatives. III. An Improved Synthesis of 6-Nitrosalicylaldehyde ..... M. Ando and S. Emoto 2903

Phenolysis of *exo*- and *endo*-2-Norbornyl *p*-Toluenesulfonates. Rates and Product Distributions ..... K. Okamoto, T. Kinoshita, and Y. Ito 2905

Preparation of 9-Butadiynyltriptycene and 9,9′-Ditriptycyyltetraacetylene ..... S. Akiyama, F. Ogura, and M. Nakagawa 2907

Formation and Reduction of 2-Acyl-1-tetralones ..... M. Iwata and S. Emoto 2908

Aromatic Substitution of Olefins. XX. Reactions of Triphenylamine, -phosphine, -arsine, -stibine, and -bismuth with Styrene in the Presence of Palladium(II) Salts ..... R. Asano, I. Moritani, Y. Fujiwara, and S. Teranishi 2910

Electrochemistry of Organic Sulfur Compounds. IV. Anodic Sulfonium Formation from Alkyl Phenyl Sulfides ..... S. Torii, Y. Matsuyama, K. Kawasaki, and K. Uneyama 2911

The Catalytic Effect of Acid on the *ON* Migration of the *s*-Triazinyl Group of *O*-(*s*-Triazinyl)-2-aminophenols ..... T. Shiojima, Y. Hashida, and K. Matsui 2914

The Reaction of 2-Chlorotropone with Methyl Methacrylate ..... H. Takeshita, M. Shima, and S. Ito 2915

The Oxidation of Alkylbenzenes and Acylcarbinols by Means of Benzopinacol Diesters ..... K. Kitatani, T. Shirafuji, and H. Nozaki 2917

Synthesis of Dihydrofarfugin B ..... H. Shirasaki, H. Komatsu, H. Nagano, Y. Moriyamm, Y. Tanahashi, and T. Takahashi 2918

Stereostructure of Zonarene ..... M. Iguchi, M. Niwa, and S. Yamamura 2920

Reaction of Sydnones with Phosphorus Pentasulfide ..... K. Sugimoto and M. Ohta 2921

Diels-Alder Reaction of "Anhydrochloral-urethane" with 1,3-Dienes..... T. Imagawa, K. Sisido, and M. Kawanisi 2922

The Novel Synthesis of Two Diastereomers of γ-Hydroxyproline ..... Y. K. Lee and T. Kaneko 2924

Thiocyanoacteate. V. Reaction of Thiocyanoacetic Esters with Aromatic Aldehydes in the Presence of Potassium Acetate ..... S. Kambe 2926

Applied

An Attempt at Simultaneous Observation by Polarizing Microscopy and by Differential Thermal Analysis .... K. S. Kunihisa 2862

No. 10

General and Physical

The ESR Study of the Interaction of O_2 with Ag Dispersed on Silica Gel ..... N. Shimizu, K. Shimokoshi, and I. Yasumori 2929

ESR Studies of the Cation Radicals Produced by $SbCl_5$ Oxidation of Some Biphenyls with *ortho*- and *para*-Dialkyl Substituents..... K. Ishizu, M. Ohuchi, F. Nemoto, and M. Suga 2932

The Kinetics of Oxygen Exchange between Arsenate Ions and Solvent Water ..A. Okumura and N. Okazaki 2937

An MO-simulation of Elementary Reactions in Hydrocarbon Oxidation. I. A Bimolecular Coupling Reaction of the Methyl Radical and Molecular Oxygen.....K. Ohkubo and F. Kitagawa 2942

The Crystal Structure of an *N*-Methylphenothiazine-7,7,8,8-Tetracyanoquinodimethane Complex, *N*-MePZT-TCNQ.....H. Kobayashi 2945

The Effects of Doubly-excited Configurations in the P-P-P-CI Calculation ..... H. Shinoda, H. Tatematsu, and T. Miyazaki 2950

The Electronic States of *p*-Bromanil and Its Anion Radical as Studied by Means of Their Infrared Spectra .....Y. Iida 2955

The Crystal Structure of Trimellitic Acid for the Pseudo-cell ..... F. Takusagawa, K. Hirotsu, and A. Shimada 2960

Hydrates of Organic Compounds. I. Solid-Liquid Phase Equilibria in the Water+1,4-Dioxane System and Some Properties of 1,4-Dioxane Hydrate .....H. Nakayama and M. Tahara 2965

The Microwave Spectrum of Methyl Iodide in Excited Vibrational States. Fermi and Coriolis Interactions among $\nu_3+\nu_6$, ν_5, and ν_2 Vibrations .....Y. Kawashima and C. Hirose 2969

The Electronic Structure of Nickelocene by Means of the Configurational Interaction Method ..... S. Kobinata 2976

Oxygen Exchange between Arsenate Ions and Water of Crystallization in the Course of Hydration and Dehydration of Disodium Hydrogen Arsenate and Sodium Dihydrogen Arsenate ..... A. Okumura and N. Okazaki 2981

Acidic Properties of Binary Metal Oxides ..... K. Shibata, T. Kiyoura, J. Kitagawa, T. Sumiyoshi, and K. Tanabe 2985

Solvent Effect under High Pressure. Participation of Solvent in the Activated Complex of the Menschutkin Reaction.....K. Tamura, Y. Ogo, and T. Imoto 2988

Kinetic Studies of Fast Reactions in Aqueous Solutions of Amylamine by Means of Ultrasonic Absorption .....S. Nishikawa, T. Yasunaga, and K. Takahashi 2992

The Crystal Structure of Hemimellitic Acid Dihydrate .....F. Takusagawa and A. Shimada 2998

The Ultrasonic Velocity and the Absorption of Aqueous *t*-Butyl Alcohol Solutions in Relation to the Structures of Water and Solutions .....H. Endo and O. Nomoto 3004

ESR Evidence for the Destruction of the Four-membered Chelate Structure of Bis(*O,O'*-diethyldithiophosphato)-oxovanadium(IV) by Pyridine Bases.....M. Sato, Y. Fujita, and T. Kwan 3007

Photolysis of Ethylene at 1634 Å and 1849 Å ..... H. Hara and I. Tanaka 3012

Molecular Interactions of *p*-(*N*,*N*-Dimethylamino)-benzonitrile. Electrostatic Self-Complex and Hetero-Complex Formation in the Ground and Excited States..... N. Nakashima and N. Mataga 3016

Calorimetric Study of the Glassy State. VIII. Heat Capacity and Relaxational Phenomena of Isopropylbenzene ..... K. Kishimoto, H. Suga, and S. Seki 3020

Brillouin Scattering and Elastic Constants of Potassium Bromide ..... H. Matsuura and T. Miyazawa 3031

The Photoelectron Spectra of Alcohols, Mercaptans and Amines ..... H. Ogata, H. Onizuka, Y. Nihei, and H. Kamada 3036

The Electrification of Iron Oxide in Water ..... T. Morimoto and S. Kittaka 3040

The Effect of the Temperature on the Mass Spectra of Aliphatic Primary Alcohols and 1-Alkenes. I ..... H. Hoshino, S. Tajima, and T. Tsuchiya 3043

Molecular Structure of Acetamide as Studies by Gas Electron Diffraction..... M. Kitano and K. Kuchitsu 3048

Intermediates and Mechanism of Photo-Oxygenation Reaction of Triethylamine ..... H. Tsubomura, T. Yagishita, and H. Toi 3051

Molecular Association and Electronic Spectra of Naphthoic Acids: Formation of an Excimer-like Complex in 1-Naphthoic Acid in Rigid-Glass Matrix ..... M. Kitamura and H. Baba 3056

Electron-donating Strengths of Some Ketimines. Intermolecular Charge Transfer Studies ..... R. Abu-Eittah and M. M. Hamed 3062

ESR Line Width and Exchange Narrowing in Powder Samples ..... B. N. Misra and S. K. Gupta 3067

Intramolecular Rotations in 1,2-Dialkoxyethanes in the Liquid State ..... A. Das, A. Ghatak, A. Hasan, and S. B. Roy 3070

Polarographic Study of the Substitution Reactions between Nickel(II) Ions and Copper(II) Chelates of Triethylenetetraminehexaacetic Acid..... M. S. Haque and M. Kopanica 3072

A UV Study of the Magnesium Haematoporphyrin Complex ..... V. D. Anand and W. R. Carper 3077

Notes:

π-Electron Structures of Aromatic Hydrocarbons in Their Low-lying Triplet States..... H. Kashiwagi, S. Iwata, and S. Nagakura 3289

Energetic Consideration of $C_5H_5^+$ Ions Produced from Various Precursors by Electron Impact ..... S. Tajima and T. Tsuchiya 3291

Visual Autoclaving Studies of Hydrothermal Changes in Sugar Solutions....T. Katsurai and Y. Makide 3293

On Liquefaction Caused by the Trituration of Pairs of Solid Compounds. II ..... T. Katsurai and K. Maeda 3294

A Note on the Kinetic Parameter Determination at the DME by Koutecký's Method ..... J. N. Gaur and S. K. Bhargava 3314

Analytical and Inorganic

Some Reversible and Irreversible Electrode Processes at DME. A Study on Uranyl and Zinc Complexes of L-Hydroxyproline in Aqueous and Aqueous-Methanolic Solutions ....P. C. Rawat and C. M. Gupta 3079

Liquid-Liquid Extraction of Zinc with Thiothenoyltrifluoroacetone. Direct Photometric Determination in the Organic Phase..... K. R. Solanke and S. M. Khopkar 3082

Thermometric Titration in the Investigation of the Formation of Polyanions of Molybdenum(VI), Tungsten(VI), Vanadium(V), and Chromium(VI). III. Titration of Molybdic Acid with Sodium Hydroxide Solution ..... N. Kiba and T. Takeuchi 3086

The Thermal Properties of Gallium-bearing Allophane..... M. Kasai, Y. Kudo, and S. Hamada 3091

An MO-theoretical Interpretation of the Reductive Cleavage of Organic Halides by Pentacyanocobaltate(II) ..... K. Ohkubo, H. Kanaeda, and K. Tsuchihashi 3095

The Solubility of Sulfur in Na_2O–SiO_2 Melts under Various Oxygen Partial Pressures at 1100 °C, 1250 °C, and 1300 °C ..... S. Nagashima and T. Katsura 3099

Stereoselectivity in Mixed Tris-type Complexes of Cobalt(III) with L-Proline and L- or D-Aspartic Acid.... ..... T. Matsuda and M. Shibata 3104

Molecular Complexes of Arenetricarbonylchromium ..... H. Kobayashi, M. Kobayashi, and Y. Kaizu 3109

Circular Dichroism of Copper(II) Complexes with Optically Active Tetradentate Ligands in Aqueous Solutions ..... T. Murakami and M. Hatano 3116

Derivatographic Studies on Transition Metal Complexes. XI. Thermal Ligand-exchange Reaction of *cis*- and *trans*-[CoXY(N_4)]SCN·$n$$H_2O$ Type Complexes.....R. Tsuchiya, T. Murakami and E. Kyuno 3119

Kinetic Studies of the Nickel Lactate Complex Formation in Solution by the Pressure-jump Method ..... S. Harada, H. Tanabe, and T. Yasunaga 3125

Application of the Zone Melting Technique to Metal Chelate Systems. VII. Computer-assisted Consideration on the Solute Distribution Profiles in Zone Melting Process....S. Maeda, H. Kobayashi, and K. Ueno 3128

Circular Dichroism and Absolute Configuration of Triammine(sarcosinate-*N*-monopropionato)cobalt(III) Chloride and Several Analogues .....K. Okamoto, J. Hidaka, and Y. Shimura 3134

Notes:

Thermal Decomposition Studies of the Ammonium Forms of the Crystalline Zirconium Phosphate Ion Exchanger ..... Y. Hasegawa 3296

The Near-ultraviolet Absorption of Aqueous Solution of Copper(II) Ammine Complex with an Excess of Ammonia ..... M. Sakamoto and S. Kida 3298

Polarographic and ESR Studies on the Electrode Reactions of Tris(2,2′-bipyridine)iron(II) in Acetonitrile.. .....N. Tanaka, T. Ogata, and S. Niizuma 3299

Chemical Effects of Osmium Neutron Capture Recoils. III. Cation Effect in Crystalline Mixtures of $K_4Os(CN)_6$–$K_4Fe(CN)_6$–$Cs_4Fe(CN)_6$ .....E. M. Diefallah and J. G. Kay 3318

Organic and Biological

The Tautomeric Equilibria of 4-(Dialkylamino)azobenzene Derivatives. II. 2- and/or 2′-Methyl-4-(dimethylamino)azobenzene Derivatives.....S. Yamamoto 3139

Liquid Crystalline Properties of Substituted Azo- and Azoxy-benzenes. I. ..K. Murase and H. Watanabe 3142

The Reaction of Nucleophilic Reagents at the β-Position of 3-Bromo-4-nitropyridine *N*-Oxide .... E. Matsumura and M. Ariga 3144

The Catalytic Effect of Bases of the O→N Migration of the *s*-Triazinyl Group in *O*-(*s*-Triazinyl)-2-aminophenols ..... T. Shiojima, Y. Hashida, and K. Matsui 3147

Kinetics of Multidentate Ligand Substitution Reactions. XV. Substitution Reactions of 1,2-Cyclohexanediamine-*N*,*N*,*N*′,*N*′-tetraacetic Acid (CyDTA) with Zinc(II) Iminodiacetate (IDA), *N*-(2-Hydroxyethyl)-iminodiacetate (HIDA), and Nitrilotriacetate (NTA) Complexes and Those with Cobalt(II)-IDA, -HIDA, NTA, -*N*-(2-Hydroxyethyl)ethylenediamine (EtEN), and Diethylenetriamine (Dien) Complexes .... M. Kodama and K. Hagiya 3151

A-Substituted 5β-Steroids. V. Syntheses and Some Reactions of 1-Oxygenated 5β-Cholestanes .... J. Y. Satoh, K. Misawa, T. T. Takahashi, M. Hirose, C. A. Horiuchi, S. Tsujii, and A. Hagitani 3155

Catalytic Decomposition of Stable Sulfur Ylids .....H. Matsuyama, H. Minato, and M. Kobayashi 3158

The Synthesis of Azulene Derivatives Condensed with Several Heterocycles ....T. Nozoe, T. Asao, and M. Kobayashi 3161

Synthesis of "Reversed" Nucleosides of Some Purine and Pyrimidine Bases .... S. Fukatsu, Y. Takeda, and S. Umezawa 3165

Formation and Reaction of Cyclohexanone Oxime Hydrogen Sulfate ....K. Fukui, M. Uchida, and M. Masaki 3168

Reaction of 3,4,5,6-Tetrahydro-2*H*-azepin-7-ol Hydrogen Sulfate with Nucleophilic Reagents ....M. Masaki, M. Uchida, and K. Fukui 3174

Reaction of 3,4,5,6-Tetrahydro-2*H*-azepin-7-ol Hydrogen Sulfate with Cyclohexanone Oxime–Tin Tetrachloride Complex .....M. Masaki, K. Fukui, M. Uchida, K. Yamamoto, and I. Uchida 3179

The Synthesis and the Absolute Configurations of Lilac Alcohols, New Naturally Occurring Odorous Ingredients of Lilac Flower .....S. Wakayama, S. Namba, K. Hosoi, and M. Ohno 3183

Synthetic Studies of Bacitracin. VIII. Synthesis of Cyclohexapeptide Moiety ....E. Munekata, Y. Masui, T. Shiba, and T. Kaneko 3187

Telomerization of Ethylene with Carbon Tetrachloride Initiated by *N*-Chloroalkylamines .... T. Asahara, M. Senō, and N. Ohtani 3193

Photoinduced Reactions. LXXIII. Solvent Dependence in the Photochemical Reaction of α-Nitroepoxides ..... I. Saito, M. Takami, T. Konoike, and T. Matsuura 3198

Branched-chain Sugars. III. Addition of Vinylmagnesium Bromide to 5,6-Dideoxy-1,2-*O*-isopropylidene-6-*C*-nitro-3-*O*-substituted-α-D-*xylo*-hex-5-enofuranoses .....T. Iida, M. Funabashi, and J. Yoshimura 3203

Branched-chain Sugars. IV. Synthesis of 5,6-Dideoxy-5-*C*-hydroxymethyl-1,2-*O*-isopropylidene-6-*C*-nitro-3-*O*-substituted-α-D-glucose Derivatives.....J. Yoshimura, T. Iida, H. Wakai, and M. Funabashi 3207

Studies on Aminosugars. XXXVI. Syntheses of 3′,4′-Dideoxy-3′,4′,5″-Trideoxyribostamycin ..... D. Ikeda, T. Suzuki, T. Tsuchiya, S. Umezawa, and H. Umezawa 3210

Kinetic Studies on the Cationic Ring-Opening Polymerization of Tetrahydrofuran Initiated by Superacid Esters ..... S. Kobayashi, H. Danda, and T. Saegusa 3214

Kinetic Study on the Ring-Opening Polymerization of Tetrahydrofuran by Pyrosulfuryl Chloride Initiator.. ..... S. Kobayashi, T. Saegusa, and Y. Tanaka 3220

Polycondensation of Malononitrile and Methylenedimalononitrile with Bis(chloromethyl) Aromatic Compounds Using Triethylamine as Acid Acceptor .....N. Kawabata, K. Matsubara, and S. Yamashita 3225

Compounds Relating to Dibenzoyladenine Riboside. The Choice between the N^6,1-Dibenzoyl and N^6,N^6-Dibenzoyl Structures .....K. Anzai and M. Matsui 3228

The Metalation of Fluorene by Means of the Diethylmagnesium–Hexamethylphosphoramide System .... M. Tomoi and H. Kakiuchi 3233

The Carbonylation of Alcohols Catalyzed by Cu(I) Carbonyl .....Y. Souma and H. Sano 3237

Solid Phase Peptide Synthesis by Oxidation-Reduction Condensation. Synthesis of LH–RH by Fragment Condensation on Solid Support .... R. Matsueda, H. Maruyama, E. Kitazawa, H. Takahagi, and T. Mukaiyama 3240

Studies of Reaction Mechanisms by All-valence Electron Semi-Empirical SCF MO Theories. VIII. Electronic Structure and Valence Isomerization of *syn*- and *anti*-Tricyclo[4.2.0.$0^{2,5}$]octa-3,7-dienes ....H. Iwamura, H. Kihara, K. Morio, and T. L. Kunii 3248

The Reaction of Arylthallium(II) Compounds with Copper(II) and (I) Thiocyanates .... S. Uemura, S. Uchida, M. Okano, and K. Ichikawa 3254

Reactions of the Iodocarbenoid of Zinc. I. The Synthesis of Alkyl-substituted 7-Ethylcyclohepta-1,3,5-trienes *via* the Ring-expansion of Alkylbenzenes with Diethylzinc and Iodoform ..S. Miyano and H. Hashimoto 3257

The Preparation and Reactions of *N*-Substituted Hexafluoroisopropylideneimines .... N. Ishikawa and T. Kitazume 3260

The Effect of Acylamino Groups in Diazo-coupling Reactions ....Y. Hashida, K. Mitsumura, S. Sekiguchi, and K. Matsui 3263

The Synthesis of 1,2-Diamino- and 1,2,3-Triaminoazulene Derivatives ....T. Nozoe, T. Asao, and M. Kobayashi 3266

Hydrolyses of *p*-Nitrophenyl(oligodeoxyribonucleotide succinate)s by Oligodeoxyribonucleotide *N*-Acetylhistidates on Polycytidylic Acid .....T. Shimidzu and R. L. Letsinger 3270

Studies on Pyrophosphates. II. A New Method for the Synthesis of Nucleotide Coenzymes and Their Analogs .....I. Nakagawa and T. Hata 3275

Reactions of *N*-Acylaminoacetamidine with 1,3-Bifunctional Compounds .... H. Uchida, H. Iwasawa, and M. Ohta 3277

Improved Solid-Phase Synthesis of Tryptophan-Containing Peptides. II. Use of N^{α}-*t*-Butyloxycarbonyl-N^{i}-formyltryptophan .....M. Ohno, S. Tsukamoto, S. Sato, and N. Izumiya 3280

The Reactions of the Hexafluorothioacetone Dimer with Nucleophiles in the Presence of the Fluoride Ion .. .. T. Kitazume and N. Ishikawa 3285

Notes:

Sugars Containing a Carbon–Phosphorus Bond. IV. 5-(Alkylphosphonyl)-5-deoxy-*O*-methyl-D-xylopyranose ..... K. Seo and S. Inokawa 3301

The Formation of Carbon–Carbon and Carbon–Oxygen Bonds in the Oxidation of Enolizable Ketones with Iron(III) Chloride.....H. Inoue, Y. Kimura, and E. Imoto 3303

Reaction of 4-Acetylsydnones.....H. Tien, K. Kanda, A. Chinone, and M. Ohta 3304

The Diels-Alder Reaction of 1,3,5-Cycloheptatriene with Thiobenzophenone ....Y. Ohnishi, Y. Akasaki, and A. Ohno 3307

Nuclear Magnetic Resonance Study of the Stereoisomeric 2-Oxazolidone and 2-Phenyl-2-oxazoline Derivatives of α-Amino-β-hydroxy Acids.....S. Futagawa, T. Inui, and T. Shiba 3308

Synthesis of Dinucleoside Analog of Uracil-Uracil .....T. Seita, M. Kinoshita, and M. Imoto 3310

A Facile Synthesis of Mellein .....Y. Arai, T. Kamikawa, and T. Kubota 3311

Isolation and Characterization of a Yellow Pteridine from *Drosophila melanogaster* Mutant *sepia* .... K. Sugiura, S. Takikawa, M. Tsusue, and M. Goto 3312

Synthesis of Bridged Bicycloferrocene: Participation of Anhydrous Aluminum Chloride in the Condensation Reaction ..... Y. Omote, R. Kobayashi, Y. Nakada, and N. Sugiyama 3315
Photochemical Reactions of Aromatic Compounds. XVII. The Photocyclization of *N*-(*o*-Chlorobenzyl)aniline ..... K. Mizuno, C. Pac, and H. Sakurai 3316
Reactions of 3-Bromocamphor with Phenylhydrazine ..... A. G. Giumanini, L. Caglioti, and W. Nardini 3319

No. 11

General and Physical

Impurity Effect on Domain Formation in a Nematic Liquid Crystal ..... J. Nakauchi, M. Yokoyama, H. Sawa, K. Okamoto, H. Mikawa, and S. Kusabayashi 3321
The Self-diffusion of Chloride Ions in Divalent Metal Chloride Crystallites with $CdCl_2$-type Structure .. Y. Sensui 3324
The Reflection Spectra of Simple Salts of the Tetracyanoquinodimethane Anion Radical ..... Y. Oohashi and T. Sakata 3330
A Note on the Intermolecular Orthogonalized Orbital ..... H. Kato and S. Ishimaru 3336
Arrangement of Acridine Orange in the Poly-α,L-glutamic Acid–Acridine Orange Complex ..... Y. Sato and M. Hatano 3339
Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. VII. Complex Isomerism in Several Anilinium Alkyl-substituted Picrates ..... N. Inoue and Y. Matsunaga 3345
Small-angle Electron Scattering by Gases. CS_2 and CCl_4 ..... M. Nagashima, S. Konaka, T. Iijima, and M. Kimura 3348
The Electronic Spectrum of *p*-Benzosemiquinone Anion in Aqueous Solution ..... S. Fukuzumi, Y. Ono, and T. Keii 3353
Hydrogen Formation in the Gas-Phase Radiolysis of C_2H_4–D_2O Mixtures .... K. Kuwabara and Y. Hatano 3355
Dielectric Relaxation and Molecular Structure. VII. Structure of the Molecules of Diphenylene Dioxide Type ..... Y. Koga, H. Takahashi, and K. Higasi 3359
The Primary Photochemical Process of 4-Nitropyridine *N*-Oxide. III. Its Photochemical Behavior in an Aqueous Solution ..... N. Hata, I. Ono, and K. Osaka 3363
Molar Volume of Ions ..... F. Hirata and K. Arakawa 3367
Radiotracer Studies on Adsorption of Surface Active Substance at Aqueous Surface. V. Effects of Additives on the Adsorption of Tritiated Nonionic Surfactant ..... K. Tajima and M. Iwahashi 3370
Radical Formation Initiated by the Biphotonic Excitation of Acridone ..... Y. Miyashita, S. Niizuma, H. Kokubun, and M. Koizumi 3373
Kinetics of the Hydrolysis of Diethyl Acetal Catalyzed by Iron(III) in Aqueous Solution ..... G. Wada and M. Sakamoto 3378
Emission Spectra of Benzonitrile, Aniline, and Nitrobenzene by Controlled Electron Impact ..... M. Tsuji, T. Ogawa, and N. Ishibashi 3380
Dielectric Constant Measurement on Organic Crystalline Powder .... K. Ishii, M. Kinoshita, and H. Kuroda 3385
Photoelectron Spectra and Sum Rule Consideration. Higher Alkyl Amines and Alcohols ..... S. Katsumata, T. Iwai, and K. Kimura 3391
Electroluminescence in Pentacene Doped Anthracene Crystals ..... N. I. Wakayama, N. Wakayama, and D. F. Williams 3395
Vibration-Rotation Spectrum of Methyl Fluoride. I. Analysis of $2\nu_3$ Band ..... J. Nakagawa, I. Suzuki, T. Shimanouchi, and T. Fujiyama 3399
Vibrational Spectra and Molecular Conformations of Dialkyl Disulfides .. H. Sugeta, A. Go, and T. Miyazawa 3407

Notes:

Modifying Effect of Acetic Acid or Triphenylphosphine on the Raney Cobalt Catalyst in the Liquid-phase Hydrogenation of an Aliphatic α,β-Unsaturated Aldehyde ..... K. Hotta and T. Kubomatsu 3566
Difficulty of Establishing Adsorption Equilibrium in *n*-Butylamine Titration of Solid Acid Surfaces ..... J. Take, Y. Nomizo, and Y. Yoneda 3568
The Formation of Benzene Dimer Cations on Synthetic Mordenite ..... H. Tokunaga, Y. Ono, and T. Keii 3569
An Electron Spin Resonance Study of the Carbonization of Acenaphthylene ..... Y. Yamada and S. Toyoda 3571
Deformation of the Molecular Orientation of Nematic Liquid Crystals with Homeotropic Alignment in Electric Field ..... S. Sakagami, A. Takase, and M. Nakamizo 3573

Temperature Dependence of Association of Methanol, Ethanol, and 1-Propanol ..... Y. Sakai, Y. Sadaoka, and T. Yamamoto 3575

An Application of the 0s-Function to Molecular Systems of H_2^+ and H_2 ..... S. Ishimaru, K. Tanaka, and T. Yamabe 3577

Anomalous Magnetic Properties of Crystalline Galvinoxyl Radical. IV. Effect of the Deuterium Substituent .. K. Mukai, M. Iizuka, and K. Ishizu 3578

Effective Ionic Charges of Lithium Niobate Crystal Obtained from the TO-LO Splittings of Infrared Active Lattice Vibrations ..... J. Hiraishi 3580

Anodic Oxidation of *N,N*-Dimethyl-*p*-phenylenediamine with Sodium Sulfite ..... T. Erabi, F. Arifuku, and M. Tanaka 3582

The Dimorphism and Electronic Spectra of Anisyl-*p*-benzoquinones ..... J. Aihara, G. Kushibiki, and Y. Matsunaga 3584

The Solid Molecular Complex Formed between Phenothiazinyl Neurtal Radical and Bromine ..... S. N. Bhat and H. Kuroda 3585

Analytical and Inorganic

Isocyanide-phosphine Complexes of Cobalt(I) ..... S. Otsuka and M. Rossi 3411

The Dissolution of $CaMg(SiO_3)_2$ in Acid Solutions ..... I. Sanemasa and T. Katsura 3416

Polarographic Studies of the Rates of the Dissociation Reactions of Cobalt(II)-Iminodiacetate, -Aspartate, and -2,2′-Ethylenedioxydi(ethylamine)-*N,N,N′,N′*-tetraacetate Complexes ..... M. Kodama 3422

Spectra of Nickel(II)-Azide Complexes in Organic Solvents ..... R. Abu-Eittah and S. Elmakabaty 3427

Kinetics of the Formation of MoO_{3-x} at Elevated Temperatures from a Mixture of MoO_3 and α-Al_2O_3 ..... Y. Kotera and A. Ueno 3431

The Fluorination of Carbonyl Sulfide ..... S. Nagase, H. Baba, K. Kodaira, and T. Abe 3435

The Magnetic Properties of Iron(II) Complexes with 2-(2′-Pyridyl)imidazole and Its Derivatives ..... Y. Sasaki and T. Shigematsu 3438

The Preparation and Absorption Spectra of the Mixed *cis*-Dicyano Complexes of Cobalt(III) with Carbonato or Related Ligands ..... S. Fujinami and M. Shibata 3443

The Isomerism of Metal Complexes Containing Multidentate Ligands. IV. The Cobalt(III) Complex of Linear Pentaethylenehexamine ..... Y. Yoshikawa and K. Yamasaki 3448

Trimethylenediamine Complexes. III. *cis-trans* Isomeric Pairs of Diazido- and Dicyano-bis(trimethylenediamine)cobalt(III) Complexes ..... H. Kawaguchi and S. Kawaguchi 3453

Mixed Ligand Complex Formation between Monodentate Ligands and Various Tridentate Ligand-Copper(II) Complexes ..... O. Yamauchi, H. Benno, and A. Nakahara 3458

Notes:

Torsional Braid Analysis of Magnesium Highpolyphosphate Coacervates ..... T. Umegaki and T. Kanazawa 3587

Electron-transfer Reactions of Multidentate Ligand Cobalt(III) Complexes. VI. The Effect of the Chelation of Nonbridging Ligands on the Iron(II) Reductions of Chlorocobalt(III) Complexes ..... Y. Kurimura, K. Ohashi, and S. Ohkubo 3588

The Mössbauer Effect of Several Iron(II) Octahedral Complexes of α-Dioxime .. Y. Sasaki and T. Shigematsu 3590

Photochemical Reactions of 1,1-Diphenyl-2-picrylhydrazyl with Gold(III) Complexes .. M. Asai and S. Tazuke 3592

The Chelation-induced Deceleration of the Methyl Proton Exchange in the Bisacetylacetoneethylenediimine Ligand ..... I. Takagi and H. Yoneda 3593

Indirect Determination of Tantalum by Atomic Absorption Spectrophotometry ..... T. Matsuo, J. Shida, and S. Kudo 3595

The Rapid Collection of Traces of Silver with Mercury in an Ultrasonic Field ..... A. Mizuike, K. Fukuda, and T. Sakamoto 3596

The Sublimation Pressure of Tetrasulfur Tetranitride ..... S. Hamada 3598

Organic and Biological

The Nucleophilic Ring-opening Reactions of α,α'-Dinitrocycloalkanones ..... Y. Kobayashi 3462

The Photolysis of 3,3-Pentamethyleneoxaziridine ..... Y. Kobayashi 3467

Carboxylation of Phenol Derivatives. XXI. The Formation Reaction of the Complex from Alkali Phenoxide and Carbon Dioxide ..... I. Hirao and T. Kito 3470

Syntheses and the Beckmann Fission of Cyclic α-Hydroxyimino Ketones ..... M. Kataoka and M. Ohno 3474

The Activation of Bivalent Sulfur Compounds with Cupric Chloride and Zinc Chloride. The Benzylation and Acylation of Aromatic Compounds with Sulfides and Thiol Esters ..... K. Maekawa, K. Narasaka, and T. Mukaiyama 3478

Kinetic Study of the Pyrolysis of 1- and 2-Phenylethyl Phenyl *N*-Tosylsulfilimines ..... S. Oae, K. Harada, K. Tsujihara, and N. Furukawa 3482

Reaction of 4-Picoline *N*-Oxide with Acetic Anhydride as Studied by Chemically Induced Dynamic ^{13}C Polarization (CINDP) ..... H. Iwamura, M. Iwamura, M. Imanari, and M. Takeuchi 3486

Effect of Pressure on the Rate of Solvolysis. Hydrolysis of 1-Aryl-1-methylethyl Chlorides ..... A. Sera, T. Miyazawa, T. Matsuda, Y. Togawa, and K. Maruyama 3490

Optical Resolution and Stereochemistry of γ-Hydroxyglutamic Acid ..... Y. K. Lee and T. Kaneko 3494

The *N*→*O* and *N*→*S* Migrations of the *s*-Triazinyl Groups of *N*,*N*-Di-*s*-triazinyl Derivatives of *o*-Aminophenol and *o*-Aminothiophenol ..... S. Tsunoda, T. Shiojima, Y. Hashida, S. Sekiguchi, and K. Matsui 3499

Reaction between Methyl-*p*-tolylmethoxysulfonium Salt and Nucleophiles ..... K. Tsumori, H. Minato, and M. Kobayashi 3503

Studies on Aminosugars. XXXV. Syntheses of 3′,4′-Dideoxyneamine and 3′- and 4′-*O*-Methylneamines ..... T. Jikihara, T. Tsuchiya, S. Umezawa, and H. Umezawa 3507

(1,3-Dithiolan-2-yl)trimethylammonium Iodide. An Electrophilic Dithiolanylating Reagent ..... K. Hiratani, T. Nakai, and M. Okawara 3510

Reduction of *gem*-Bromofluorocyclopropanes with Organosilicon Hydrides ..... T. Ando, H. Hosaka, W. Funasaka, and H. Yamanaka 3513

Cycloaddition Reaction of Cycloheptatriene and Nitrosobenzene Derivatives ..... S. Ito, S. Narita, and K. Endo 3517

Layered Compounds. XV. Synthesis and Properties of Multilayered Cyclophanes ..... T. Otsubo, S. Mizogami, I. Otsubo, Z. Tozuka, A. Sakagami, Y. Sakata, and S. Misumi 3519

Application of the Mannich Reaction to 1-Azaazulan-2-one. Syntheses of Seven-Membered Analogues of Tryptophan and Related Compounds ..... A. Sato, S. Nozoe, T. Toda, S. Seto, and T. Nozoe 3530

The Synthesis of 3-Methyl-5-(2-aminoalkyl)isoxazoles ..... C. Kashima and Y. Tsuda 3533

Stereochemistry of the C and D Rings of *C*-Nor-*D*-homosteroids. I. The Birch Reduction of "Jervine-11β-ol" and Related Compounds ..... A. Murai, K. Arita, and T. Masamune 3536

The Biosynthesis of Geraniol and Citronellol in *Pelargonium roseum* Bourbon ..... T. Suga and T. Shishibori 3545

Notes:

A Synthetic Approach to DL-α-(2-Thiazolyl)glycines ..... M. Hatanaka and T. Ishimaru 3600

Photochemical Behavior of 1,1-Diphenylethylene in Polychloroalkane Solvents: Preferential Abstraction of Chlorine Atom ..... K. Matsunaga and M. Kawanisi 3602

Chlorinated 2,3′-Dithienyls. The By-products Formed in the Coupling of Thiophene with Sulfuryl Chloride and Iron Powder ..... T. Sone and Y. Abe 3603

Thermal and Photochemical Decompositions of 4,5,6,7-Tetrahydro-1,2,3-benzotriazole Analogues ..... K. Tsujimoto, M. Ohashi, and T. Yonezawa 3605

Nitration of Polyalkylbenzenes in Acetonitrile. Another View on Side-chain Acetamidation ..... H. Suzuki and T. Hanafusa 3607

Pyrrolizidine Alkaloids: The Synthesis and Stereochemistry of α- and β-Retusanecic Acids ..... S. Kiyooka and T. Hase 3609

Reaction of *trans*-Stilbene with Methanesulfenyl Chloride ..... M. Ōki, A. Nakamura, and K. Kobayashi 3610

Synthesis and Reaction of 1-Substituted-4-benzyl-piperazine-2-ones ..... H. Uchida and M. Ohta 3612

Intramolecular Charge-transfer Interaction in Substituted Diphenylmethanes ..... H. Inoue, Y. Mikami, and T. Yokotani 3614

On the Reaction of *p*-Toluenesulfinyl Chloride with Anisole ..... T. Fujisawa, M. Kakutani, and N. Kobayashi 3615

Rearrangement of Potassium *o*-Hydroxybenzoate as Revealed by Microthermal Analyses ..... K. Ota 3617

An *ab initio* MO Study of the Hydrogen Bond in $NH_3 \cdot HF$ ..... S. Yamabe, S. Kato, H. Fujimoto, and K. Fukui 3619

Methyl Signals in the PMR Spectra of Nigakilactones and Nigakihemiacetals ..... T. Murae, T. Ikeda, A. Sugie, T. Nishihama, T. Tsuyuki, and T. Takahashi 3621

Kinetics and Mechanism of the Oxidation of Aliphatic Alcohols by Acid Permanganate ..... K. K. Banerji 3623

Synthesis and Rearrangement of Oxanilic Esters Arylhydrazones ..... A. S. Shawali and M. K. Ahmad 3625

Applied

Oxidation of Carbon Monoxide over Transition Metal Ion-Zeolite Catalysts ..... T. Kubo, H. Tominaga, and T. Kunugi 3549

The Methylenation of Several Allylbenzene-1,2-diol Derivatives in Aprotic Polar Solvents ..... H. Fujita and M. Yamashita 3553

Preparation of Reinforcing Fillers from Japanese Acid Clays with Lime and by Calcination. II. Optimum Conditions for the Preparation of Good Hard Clays and Evaluation of Their Reinforcing Properties ..... H. Rai and J. Yamada 3555

The Selective Hydrogenation of α-Methylcinnamaldehydes Catalyzed by Cobalt Carbonyl in the Presence of Amines ..... K. Kogami and J. Kumanotani 3562

No. 12

General and Physical

Group Interactions in Polyelectrolytes. VII. Amination Kinetics of Chloromethylated Polystyrene with Butylamine Isomers ..... H. Kawabe and M. Yanagita 3627
Kinetics of Oxygen Exchange between Arsenate Ions and Water. II. Catalysis by Arsenious Acid ..... A. Okumura, N. Yamamoto, and N. Okazaki 3633
The Intensity in the Resonance Raman Effect. I. The Diatomic Molecule in the Harmonic Potential Approximation ..... S. Kobinata 3636
An Investigation of the Gas-Solid Interface Reaction ..... M. Katsumoto, K. Fueki, and T. Mukaibo 3641
Polarized Absorption Spectra of Single Crystals of Ion Radical Salts. III. Temperature Dependence of the Crystal Spectra of Potassium-Chloranil ..... S. Hiroma and H. Kuroda 3645
Studies on Fragment Ion Distribution and Reaction with a Charge Spectrometer. V. Applicability of the MO Theory to the Fragmentation of Alkanes by Charge Exchange ..... S. Ikuta, K. Yoshihara, and T. Shiokawa 3648
Polarographic Studies of Some Porphyrins and Metalloporphyrins in *N,N*-Dimethylformamide ..... T. Kakutani, S. Totsuka, and M. Senda 3652
The Primary Photochemical Process of Isoquinoline *N*-Oxide in Hydroxylic Solvents ..... I. Ono and N. Hata 3658
The Photo-Erasable Memory Switching Effect of Ag Photo-Doped Chalcogenide Glasses ..... I. Shimizu, H. Kokado, and E. Inoue 3662
Kinetics of Hydrogen Electrode Reaction on Mercury. I. Theoretical Part. Non-steady State Analysis for Electrochemical Mechanism ..... A. Katayama and H. Kita 3665
Kinetics of Hydrogen Electrode Reaction on Mecury. II. Experimental Part. Elucidation of Non-steady State by Constant Potential and Linear Potential-sweep Methods ..... A. Katayama and H. Kita 3671
The Cadmium-photosensitized Decomposition of Acetaldehyde, Propionaldehyde, and *n*-Butyraldehyde ..... K. Yamamoto, S. Tsunashima, and S. Sato 3677
Molecular-symmetry Reduction In C_mH_{m-3} Cata-condensed Nonalternant Hydrocarbons ..... A. Toyota and T. Nakajima 3681
Raman Spectra and Internal Rotation of Ethyl Methyl Ether ..... T. Kitagawa, K. Kusaki, and T. Miyazawa 3685
On the Decomposition of $C_6H_5CO^+$ Ions Produced from Several Alkyl Phenyl Ketones by Electron Impact ..... S. Tajima, N. Wasada and T. Tsuchiya 3687
Far Infrared and Raman Spectra of $K_3[Co(CN)_6]$ and $[Co(NH_3)_6][Co(CN)_6]$ ..... I. Nakagawa 3690
The Electronic Absorption Spectra of Würster's Cation Radicals and Their Dimerization in Solution ..... S. Nakayama and K. Suzuki 3694
Circular Dichroism and Optical Rotatory Dispersion Spectra of Poly[γ-(1-naphthylmethyl)-L-glutamate] and Its Charge-transfer Complex ..... M. Hatano, T. Enomoto, I. Ito, and M. Yoneyama 3698
Effects of Inorganic Salts on the Dissociation of a Complex of β-Cyclodextrin with an Azo Dye in an Aqueous Solution ..... K. Mochida, A. Kagita, Y. Matsui, and Y. Date 3703
Electron-diffraction Investigation of the Molecular Structure of Tetramethyltin ..... M. Nagashima, H. Fujii, and M. Kimura 3708
Self-diffusion of a Cation through Cation Exchange Membrane and Membrane Premeability ..... K. Kaibara, K. Saito, and H. Kimizuka 3712
Transport Properties of Multi-component Polar Gas Mixtures Containing Mono-, Di-, and Trimethylamines ..... P. Naser 3715
Determination of Electrochemical Kinetic Parameters of Porphyrins and Metalloporphyrins in *N,N'*-Dimethylformamide by Radio Frequency Polarographic Method ..... T. Kakutani and M. Senda 3720

Notes:
Acidity of Hydrated Sulfates Revealed by the Enolization of Acetone ..... K. Tanaka 3887
The Solubilities, Critical Micelle Concentrations, and Krafft Points of Bivalent Metal Alkyl Sulfates ..... M. Hatō and K. Shinoda 3889
Infrared Spectra of Deoxyribonucleic Acids with Different Base Compositions in Their D_2O Solutions ..... Y. Nishimura, K. Morikawa, and M. Tsuboi 3891

Analytical and Inorganic

A Study on Spontaneous Resolution of Cobalt(III) Complex Salts ..... K. Yamanari, J. Hidaka, and Y. Shimura 3724

Copper(II) Complexes with Some Aliphatic Diaminealcohols ..... Y. Ishimura, Y. Nonaka, Y. Nishida, and S. Kida 3728
Ion-selective Electrode Membranes Responsive to Maleic and Phthalic Acids and Phthalic Acids..... A. Jyo, M. Yonemitsu, and N. Ishibashi 3734
Derivatographic Studies on Transition Metal Complexes. XII. Thermal Olation of Hydroxoaquo Cobalt-(III) and Chromium(III) Complexes Containing Amino Acids in Solid Phase ..... R. Tsuchiya, A. Uehara, and E. Kyuno 3737
An Optical Absorption Study of the Reaction of Bis(*O,O'*-diethyldithiophosphato)oxovanadium(IV) with Pyridine ..... M. Sato and T. Kwan 3745
Stability of Fused Rings in Metal Chelates. XI. Stability of Dipeptide Amide-Copper(II) Complexes .... O. Yamauchi, Y. Nakao, and A. Nakahara 3749
Ionic Equilibria in Mixed Solvents. X. Hydrolysis of Nickel(II) Ion in Dioxane-Water Mixtures ..... T. Kawai, H. Otsuka, and H. Ohtaki 3753
Pressure Effect Determined with Use of the Nondispersive Infrared Gas Analyser..... E. Niki and T. Yonezawa 3757
The Separation of Silver, Bismuth, Cadmium, and Zinc as Their Trioctylamine Complexes by Extraction Chromatography ..... T. Honjo, S. Ushijima, and T. Kiba 3764
The Analytical Application of Sulfur Analogues of β-Diketones. III. The Separation of Cobalt(II), Nickel-(II), Copper(II), Zinc(II), Mercury(II), Lead(II), and Cadmium(II) as Their STTA(1,1,1-Trifluoro-4-(2-thienyl)-4-mercapto-3-buten-2-one) Complexes by Thin-layer Chromatography on Silica Gel ..... T. Honjo and T. Kiba 3768
The Analytical Application of Sulfur Analogues of β-Diketones. V. Some Aspects of the Extraction Behavior of STTA(1,1,1-Trifluroro-4-(2-thienyl)-4-mercapto-3-buten-2-one) Complexes and Their Adducts with TOPO..... T. Honjo, S. Yashima, and T. Kiba 3772
Infrared Spectra of Some Transition-metal (Fe, Co, Ru, and Ir) Nitrosyl (^{14}NO and ^{15}NO) Complexes .. E. Miki, K. Mizumachi, T. Ishimori, and H. Okuno 3779
The Chemical Behavior of Low Valence Sulfur Compounds. VIII. The Oxidation of Sodium Thiosulfate with Ozone ..... M. Takizawa, A. Okuwaki, and T. Okabe 3785
Spectrophotometric Study on the Extaction of Magnesium(II)-8-Hydroxyquinoline-5-sulfonic Acid Chelate Anion with Zephiramine ..... M. Sugawara and T. Kambara 3789
Polarographic Behavior of 9-Nitroanthracene and 9,10-Dinitroanthracene in Dimethylformamide ..... T. Kitagawa and A. Ichimura 3792
Studies of Nitrogen-Phosphorus Compounds. XXV.[1] The Synthesis of Guanidium Condensed Phosphates ..... E. Kobayashi 3795

Note:

Chemical Studies of Minerals Containing Rarer Elements from Far East District. LXVI. Cookeite from Nagatare, Fukuoka Prefecture, Japan..... K. Sakurai, A. Kato, K. Miyokawa, and K. Nagashima 3893

Organic and Biological

Synthesis of Anomeric Methyl 6-*O*-(L-Mycarosyl)-β-D-glucosaminides and 4-*O*-(L-Mycarosyl)-β-D-mycaminosides ..... S. Koto, K. Yago, S. Zen, and S. Omura 3800
Photoinduced Reactions. LXVIII. Photochemical Dehydrogenation of Imidazolines to Imidazoles ..... T. Matsuura, Y. Ito, and I. Saito 3805
Oxidation by Transition Metal Complexes. VI. Oxidation of Cyclohexenes Catalyzed by Rhodium Complexes ..... K. Kaneda, T. Itoh, Y. Fujiwara, and S. Teranishi 3810
Photochemical Rearrangement of 2-Nitrophenyl Phenyl Sulfoxide to 2-Nitrosophenyl Phenyl Sulfone ..... R. Tanikaga and A. Kaji 3814
Behavior of 2-Pyrazolin-5-ones toward Activated Double Bond Systems: Cyanoethylation of 2-Pyrazolin-5-ones..... M. H. Elnagdi and M. Ohta 3818
Studies on Reactions of the *N*-Phosphonium Salts of Pyridines. III. A New Method for the Activation of Amines *via* the *N*-Phosphonium Salts by Means of Oxidation of Phosphorous Acid and Its Esters in the Presence of Tertiary Amines ..... N. Yamazaki and F. Higashi 3821
An Addition Reaction of Diethylamine to Styrene Catalyzed by Lithium Diethylamide ..... T. Narita, T. Yamaguchi, and T. Tsuruta 3825
Mechanism of Transylidation of Stable Sulfonium Ylids with Alkyl Sulfides in the Presence of Catalytic Disulfides..... H. Matsuyama, H. Minato, and M. Kobayashi 3826
Layered Compounds. XVI. NMR Spectra of Multilayered [2.2]Paracyclophanes..... T. Otsubo, S. Mizogami, Y. Sakata, and S. Misumi 3831
Synthetic Studies of Bacitractin. IX. Synthesis of Peptide Fragments for Bacitracins of Cycloheptapeptide Formula ..... E. Munekata, T. Shiba, and T. Kaneko 3835
Aminocyclitols. XXIX. Synthesis of Inosadiamines *via* 1,3-Dideoxy-1,3-biimino-inositols ..... T. Suami, S. Ogawa, H. Uchino, and M. Uchida 3840

The Electrochemical Fluorination of Dithiols and Cyclic Sulfides ..... T. Abe, S. Nagase and H. Baba 3845
New Syntheses to Pyrimido[4,5-*d*]pyrimidines ..... F. Yoneda and M. Higuchi 3849
The Reaction of β-Lactones with Acid Chlorides Catalyzed by Aluminum Chloride ..... T. Nakabayashi, Y. Tanaka, and S. Ito 3853
Condensation Reactions of Adenine Derivatives with 1-*O*-Acetyl-2,3,5-tri-*O*-benzoyl-β-D-ribofuranose in Nitrophenols ..... N. Nakazaki, M. Sekiya, T. Yoshino, and Y. Ishido 3858
Effect of Pressure on the Rate of Solvolysis. Formolysis and Methanolysis of Secondary Alkyl Tosylates ..... A. Sera, C. Yamabami, and K. Maruyama 3864
Photochemical Reduction of Thiobenzophenone. Reduction by Dihydroaromatic and Related Compounds ..... Y. Ohnishi and A. Ohno 3868
Tri(hetero)substituted Carbonium Ions. VIII. The Hydride Reduction of Cyclic and Open-chain Dithiocarbamidium Salts ..... K. Hiratani, T. Nakai, and M. Okawara 3872
α,β-Unsaturatde Carboxylic Acid Derivatives. IV. General Synthesis of Unsaturated Unsymmetric 3,6-Disubstituted-2,5-piperazinediones ..... C. Shin, K. Sato, A. Ohtsuka, K. Mikami, and J. Yoshimura 3876
The One-Electron Reduction of Carbonium Ions. V. A Kinetic Study on the Reduction of the Substituted Cyclopropenium Ions with Cr(II) ..... K. Okamoto, K. Komatsu, and A. Hitomi 3881

Notes:

Conformation of Methacryloyl-L-proline ..... K. Nishihara, H. Nishihara, and N. Sakota 3894
Oxosulfonium Salts. III. Methylation of Optically Active Sulfoxides ..... K. Kamiyama, H. Minato, and M. Kobayashi 3895
The Dimerization of Thymine Glycol and the Splitting of the Dimer by γ-Irradiation in an Aqueous System ..... T. Hayashi, O. Ogiso, and M. Namiki 3896
Studies on Seven-Membered Heterocyclic Compounds Containing Nitrogen. XII. Schmidt Reaction of Seven-Membered Heterocyclic Ketones ..... H. Kawamoto, T. Matsuo, S. Morosawa, and A. Yokoo 3898
The Solvent Effect on the Stability of α-Pyridoin ..... H. Inoue, M. Matsumoto, S. Kiyoi, and M. Yamanaka 3900
A Method of Synthesizing Pyrimidine Derivatives. II. ..... I. Shibuya and M. Kurabayashi 3902

BULLETIN
OF THE
CHEMICAL SOCIETY
OF JAPAN

Volume 47

1974

Masaji KUBO, Editor

Kenichi MORINAGA, Assistant Editor

Editorial Board

Akihiro ABE	Haruo HOSOYA	Yoshio MATSUNAGA	Mizuka SANO
Shigeyoshi ARAI	Hakuai INOUE	Hiroshi MINATO	Tatsuya SEKINE
Yoji ARATA	Hitoshi IWASAKI	Daiyu NAKAMURA	Hiroshi SUGA
Toyonobu ASAO	Yoshio KAMIYA	Katsumi NIKI	Hiroaki TAKAHASHI
Masao HAISA	Kiyosi KONDO	Takuhei NOSE	Shigeo TAZUKE
Tsujiaki HATA	Tamotsu KONDO	Mamoru OHASHI	Katsumi TOKUMARU
Jun-ichi HAYAMI	Eishin KYUNO	Takaharu ONISHI	Jiro TSUJI
Minoru HIROTA	Tsutomu MATSUDA	Akira OUCHI	Hiroaki YANAGIDA

Published by

The Chemical Society of Japan

5, 1-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

© 1974 by The Chemical Society of Japan

BULLETIN
OF THE
CHEMICAL SOCIETY
OF JAPAN

Volume 47

1974

Board of Editors

Chief Editor: Ryoichi Goto

Editorial Board

Akira Ito · Hiroo Inoue · Yuzo Ishii · Hideo Ogoshi
Shigeyoshi Arai · Michael Imoto · Hiroshi Iwasaki · Hideo Saito
Yuji Ikeda · Hiroki Inoue · Eiichi Imoto · Hideo Sato
Tsuyoshi Inoue · Yukio Izawa · Kazuo Kitahara · Hideo Shirai
Masao Kaya · Kazuo Kuchitsu · Kiyoshi Nakamura · Hiroshi Tanaka
Yasuji Kera · Kazuo Kuroda · Yoshio Nakao · Yoshio Tanaka
Junichi Kitagawa · Tetsuo Kusamran · Yoshio Nishimura · Kazuhiko Tanabe
Kiyomi Kozai · Takeshi Kwan · Yoshio Okamoto · Jun Tsuji
Kiyomi Kumai · Tetsuo Nozoe · Isao Ono · Hiroshi Yamamoto

Published by

The Chemical Society of Japan

5-Chome, Kanda-Surugadai, Chiyoda-ku, Tokyo, 101 Japan

© 1974 by The Chemical Society of Japan

CONTENTS OF VOLUME 47, 1974

No. 1

General and Physical

Single Crystal Electron Spin Resonance Spectra of Magnetically Dilute Copper(II) Ion in Some Five-coordinate Adducts of Zinc(II) β-Diketonate Complexes ..... S. Misumi, T. Isobe, and K. Sugiyama 1

An ESR Study of Methylamino Radicals Photoproduced on the Porous Vycor Glass Surface ..... K. Hatano, N. Shimamoto, T. Katsu, and Y. Fujita 4

The Phenanthrene/Anthracene-Picric Acid System ..... S. Koizumi and Y. Matsunaga 9

The ESR of the Fast-rotating $-CH_2$ of the Radical Formed by the Photolysis of CH_2I_2 on Silica Gel ..... K. Shimokoshi 14

The Crystal and Molecular Structure of Bicyclomycin, a New Antibiotic ..... Y. Tokuma, S, Koda, T. Miyoshi, and Y. Morimoto 18

Fluorescence Depolarization Study of Hydrogen Bonded 1-Anthrol ..... S. Hamai and H. Kokubun 24

Formation of Alkyl Radicals by Photoionization of Alcohol Radicals Trapped in Glassy Matrices ..... M. Shiotani and C. Chachaty 28

The Radiophoto-luminescence of γ-Irradiated Hydrocarbon Glasses at 77 K ..... H. Yamazaki, K. Oka, M. Sato, and S. Shida 31

A Molecular Orbital Study on the Effects of Excess Charges at the Donor and Acceptor Atoms on the Hydrogen Bond ..... A. Igawa and H. Fukutome 34

The INDO and CNDO/2 SCF LCAO MO Calculation of Intermolecular Forces and Their Pairwise Additivity ..... M. Hashimoto and T. Isobe 40

An ENDOR Study of the Relaxation Behavior of the Nuclei in Several Semiquinone Anion Radicals ..... Y. Kotake and K. Kuwata 45

X-Ray Photoelectron Spectroscopy of EDTA ..... T. Yoshida and S. Sawada 50

An Investigation of the Gas-Solid Interface Reaction on the Surface of Ag and Ag_2S ..... M. Katsumoto, K. Fueki, and T. Mukaibo 54

Calorimetric Study of Glassy State. IX. Thermodynamic Properties of Stannous Chloride Dihydrate and Dideuterate Crystals ..... T. Matsuo, M. Oguni, H. Suga, and S. Seki

Appendix: High Temperature Entropy Calculation ..... J. F. Nagle 57

Molecular Structure of Formamide as Studied by Gas Electron Diffraction ..... M. Kitano and K. Kuchitsu 67

Rotational Isomerism in Methyl-*d*-amine ..... K. Tamagake and M. Tsuboi 73

Resonance Raman Spectra of Acid-Base Indicators. I. *p*-Aminoazobenzene Derivatives ..... K. Machida, B.-K. Kim, Y. Saito, K. Igarashi, and T. Uno 78

Dielectric Relaxation and Molecular Structure. VIII. Dielectric Relaxation of Alkyl Acetates in Benzene Solution ..... Y. Koga, H. Takahashi, and K. Higasi 84

Theoretical Considerations of Lower Excited States of *trans*- Polyene Carbaldehydes. I. Electronic Structure and Oscillator Strength of π-π* Transition ..... K. Inuzuka and R. S. Becker 88

Interaction between Carbon Dioxide and the Zinc Oxide Surface ..... T. Morimoto and K. Morishige 92

Emission Spectra of Carbon Disulfide, Hydrogen Sulfide, and Thiols by Controlled Electron Impact ..... M. Toyoda, T. Ogawa, and N. Ishibashi 95

The Electronic States of 2,5-Dibromo-3,6-dichloro-1,4-benzoquinone and Its Anion Radical as Studied by Means of Their Infrared Spectra ..... Y. Iida 99

Notes:

Comparison of the Catalytic Activities of Metal Oxides for Hydrogen-Deuterium Equilibration and Ortho-Para-hydrogen Conversion ..... K. Otsuka and T. Keii 234

The Decomposition of Nitrous Oxide in the Radiolysis of *n*-Hexane Solutions ..... Y. Hatano and J.-L. Abboud 236

Vapor-Liquid Equilibrium in the 2-Butanol–Water System and the Effect of Uranyl Nitrate ..... N. Yui, Y. Kurokawa, and H. Ōtsuki 247

Analytical and Inorganic

The Chemistry of Protactinium. X. A Study of the Effect of Chromium(II) on the Solvent Extraction of Protactinium(IV), Using *N*-Benzoyl-*N*-phenylhydroxylamine, Tri-*n*-octylamine and Thenoyltrifluoroacetone as the Extractants ..... I. KAWASUJI and S. SUZUKI 104

The Preparation and Characterization of Bis[2-(2-pyridyl)imidazole]iron(II) Complexes ..... Y. SASAKI and T. SHIGEMATSU 109

Acid Dissociation Constants of Some Histidine-containing Peptides and Formation Constants of Their Metal Complexes ..... A. YOKOYAMA, H. AIBA, and H. TANAKA 112

The Extraction of Tris(1,10-phenanthroline)ruthenium(II). I. Distribution Studies ..... T. TAKAMATSU 118

Polarographic Studies of Some Metal(II)-Thiocyanate Complexes in Acetonitrile ..... S. MISUMI, M. AIHARA, and S. KINOSHITA 127

Optical Resolution and Racemization of Tris(acetylacetonato)germanium(IV) in Organic Solvents ..... A. NAGASAWA and K. SAITO 131

Copper(II) Complexes of L-Histidylglycine and L-Histidylglycylglycine in Aqueous Solution ..... H. AIBA, A. YOKOYAMA, and H. TANAKA 136

NOTE:

Estimation of Chlorine Content in Single Crystals of Chromium Chalcogenide Spinels by Atomic Absorption Spectrophotometry ..... K. AMETAI 242

Organic and Biological

The Chlorobromination of Olefins with Antimony(III and V) Chlorides ..... S. UEMURA, A. ONOE, and M. OKANO 143

Aromatic Bromination and Iodination with Mixtures of Antimony(V) Chloride and Halogens ..... S. UEMURA, A. ONOE, and M. OKANO 147

Studies of Unusual Amino Acids and Their Peptides. V. The Synthesis and the Absolute Configuration of β-(2-Thiazolyl)-β-alanine Present in Bottromycin ..... Y. SETO, K. TORII, K. BORI, K. INABATA, S. KUWATA, and H. WATANABE 151

Kinetics of the Oxidation of Acrolein Initiated by Di-*t*-butyl Diperoxyoxalate ..... T. HARA, Y. OHKATSU, and T. OSA 156

Asymmetric Synthesis with Sugar Derivatives. V. The Synthesis of α-Hydroxy Acids on Insoluble Polymer Supports ..... M. KAWANA and S. EMOTO 160

The Reaction of Sulfinic Acids with *N,N*-Dimethylaniline ..... S. OAE, O. YAMADA, and T. MAEDA 166

Studies on Reactions of the *N*-Phosphonium Salts of Pyridines. V. The Preparation of Carboxylic Amides and Esters by Means of the One-electron-transfer Oxidation of Phosphorous Acid and Its Esters in the Presence of Tertiary Amines ..... N. YAMAZAKI and F. HIGASHI 170

Kinetics of the Autoxidation of Substituted Anthranols to Anthraquinones in Buffered Aqueous Dioxane ..... Y. OGATA, K. NATE, and M. YAMASHITA 174

Mechanism of the Oxygen Exchange Reaction of *n*-Butyl Methyl Sulfoxide in Sulfuric Acid ..... S. OAE, M. MORIYAMA, T. NUMATA, and N. KUNIEDA 179

The Heck Reaction of 2-Vinylpyridine ..... A. KASAHARA, T. IZUMI, T. TAKEDA, and H. IMAMURA 183

Synthesis of Furfuryl and Nitrofurfuryl Derivatives of Adenine and Uracil ..... S. FUKATSU, A. SAWA, and S. UMEZAWA 186

Photolysis of 2,2-Diethoxy-2,3-dihydrophenalene-1,3-dione ..... Y. OTSUJI, S. WAKE, E. MAEDA, and E. IMOTO 189

N-Alkylideneanilines. III. Behavior of *N*-Isopropylideneanilines in Methanol-d_4 ..... H. IWAMURA, M. TSUCHIMOTO, and S. NISHIMURA 193

Syntheses and Reactions of Optically Active Polymers. I. Syntheses and Polymerizations of *N*-Vinylbenzyl-L-amino Acid Derivatives ..... M. NARITA and M. AKIYAMA 197

Synthesis of TACK, a New Chloromethyl Ketone Derivative of Arginine ..... K. INOUYE, A. SASAKI, and N. YOSHIDA 202

The Photo-desulfurization of Crude Naphtha by UV Irradiation ..... Y. BABA 204

Effects of the Wavelength and the Matrix on the Photopolymerization of 2,5-Distyrylpyrazine and Its Related Compounds and on Their Photodepolymerization ..... Y. SUZUKI, T. TAMAKI, and M. HASEGAWA 210

Total Synthesis of Ferrichrome ..... Y. ISOWA, M. OHMORI, and H. KURITA 215

Studies of Peptide Antibiotics. XXXI. Syntheses of *iso*-Gramicidin S and *iso*-[2,2′-Lysine]-gramicidin S..... H. Takiguchi and N. Izumiya 221

The Allylic Rearrangement of Linalyl Acetate in the Medium of Acetic Acid, Propionic Acid, or Acetic Acid Containing Dioxane or Sulfuric Acid.....K. Kogami and J. Kumanotani 226

Notes:

Photochemical Reaction of Halo-1,3,5-triazines: Photo-triazinylation..... H. Yamada, H. Shizuka, S. Sekiguchi, and K. Matsui 238

The Photo-Fries Rearrangement of Bis(methoxymethoxy)phenyl Cinnamates.....J. Onodera and H. Obara 240

The Structure of the Pechmann Condensation Product of *p*-Orsellinic Acid with Ethyl Acetoacetate..... T. Hirata and T. Suga 244

Double Tridentate Complex of Triquinoyl with Boric Acid.....T. Goto and M. Nagao 246

No. 2

General and Physical

The Electrodeposition of Copper and Nickel from Their Trifluoroacetate-Formamide Baths.....T. Takei 249

The Electrodepositions of Copper and Nickel from Their Trifluoroacetate-*N,N*-Dimethylformamide Baths.. T. Takei 257

Optically-active Vibrations and Elastic Constants of Calcite and Aragonite..... A. Yamamoto, Y. Shiro, and H. Murata 265

Studies of the Equilibria between TetraArylAllyl-type Radicals and Their Dimers..... K. Watanabe, J. Yamauchi, H. Ohya-Nishiguchi, and Y. Deguchi 274

The Fractionation of Tritiated Water in an Equilibrium between Organic Hydrates and Their Aqueous Solution..... H. Tanaka, T. Kado, and H. Negita 278

Spectral Intensities of Some Er^{3+} β-Diketonate Complexes.....T. Isobe and S. Misumi 281

Proton Magnetic Resonance in Organic Free Radicals, BDPA-Bz and *p*-Cl-BDPA..... K. Uchino, J. Yamauchi, H. Ohya-Nishiguchi, and Y. Deguchi 285

Kinetic Studies of Reaction between Sodium Dodecyl Sulfate and Pinacyanol Chloride..... N. Tatsumoto, K. Takeda, S. Isshiki, and T. Yasunaga 289

Fluctuation of the Myoglobin Structure.....M. Nakanishi, M. Tsuboi, and A. Ikegami 293

Molecular Structure of Hydrogen Cyanide and Acetonitrile as Studied by Gas Electron Diffraction..... K. Karakida, T. Fukuyama, and K. Kuchitsu 299

Determination of the Number of Hydrogen-Bonds in a Protein Molecule..... M. Nakanishi and M. Tsuboi 305

Fundamental Studies on Palladium Catalysts. IX. Characteristics of Hydrogen Sorption and Hydrogenation Activity of Supported Palladium Catalysts ....T. Yamabe, K. Shirono, M. Uehara, and S. Suzuki 355

New Photochemical Reactions of 9-ω-Bromoacetylanthracene. I..... T. Matsumoto, M. Sato, and S. Hirayama 358

Phase Diagrams of YCl_3–KCl, YCl_3–Nacl, and YCl_3–KCl·NaCl Systems, and Densities of Their Molten Mixtures..... J. Mochinaga and K. Irisawa 364

Formation of Charge-transfer Complexes by Solid State Reaction; Electronic Spectra and Relative Reactivity.....H. Sato and T. Yasuniwa 368

The Crystal and Molecular Structure of Tris(π-cyclopentadienyl nickel)tertiary-butylammonium..... N. Kamijyo and T. Watanabé 373

Semi-empirical SCF-MO Studies of Pd(II)- and Hg(II)-Ethylene Complexes, the Oxymercuration and the Wacker Reaction .....S. Sakaki, H. Kato, H. Kanai, and K. Tarama 377

Viscosity *B* Coefficients for Some Homologous Series of Organic Electrolytes in Aqueous Solutions. The Effect of Ionic Groups .....K. Tamaki, Y. Ōhara, H. Kurachi, M. Akiyama, and H. Odaki 384

Effect of pH on the Circular Dichroism(CD)-sensitive Transitions of Some Lanthanoid(III) Complexes and "Pseudo CD-sensitive Transitions" of Europium(III) and Terbium(III) Complexes..... S. Misumi, T. Isobe, and H. Furuta 421

Dehydration of Secondary Alcohols Catalyzed by Solid Acids.....T. Yamaguchi and K. Tanabe 424

The Proton Magnetie Resonance in the DPPH-Benzene Complex..... T. Yoshioka, H. Ohya-Nishiguchi, and Y. Deguchi 430

Pressure Effect on the Absorption Spectra of Iron Compounds ..... Y. Hara, I. Shirotani, N. Sakai, S. Nagakura, and S. Minomura 434

Polarized Absorption Spectra of the Hydroquinone and 1,4-Dimethoxybenzene Crystals in the Near and Vacuum Ultraviolet Regions ..... K. Kaya, K. Fuke, and S. Nagakura 438

Organic Charge Transfer Salts. II. Emission Spectrum of an Organic Charge Transfer Salts, 2,4,6-Triphenylthiopyrylium-1,1,3,3-tetracyanopropenide ..... T. Tamamura, M. Yokoyama, S. Kusabayashi, and H. Mikawa 442

Organic Charge Transfer Salts. III. Photoconductive and Magnetic Properties of Organic Charge Transfer Salts ..... T. Tamamura, H. Yasuba, K. Okamoto, T. Imai, S. Kusabayashi, and H. Mikawa 448

Notes:

Charge Transfer Complexes and Self-association of Flavin Adenine Dinucleotide ..... F. Takahashi and H. Maeda 488

The Reaction between the Electronic Spectra and the Oxidation and Reduction Potentials of Benzenoid Hydrocarbons ..... T. Kubota, H. Miyazaki, K. Ezumi, and M. Yamakawa 491

The Decomposition of Organic Substances by Laser Heating ..... P. H. Kim, S. Nanba, and K. Taki 493

The Pyrolysis of Hexyl Phosphates and Their Salts ..... Y. Okamoto, N. Kimura, and H. Sakurai 495

Analytical and Inorganic

The Kinetics and Mechanisms of the Reactions of Nitric and Nitrous Acids with Hexaaquochromium(II) Ions ..... H. Ogino, K. Tsukahara, and N. Tanaka 308

Factors Affecting the Line-width of Nitrogen Superhyperfine Structure in the ESR Spectra of Copper(II) Complexes ..... Y. Nonaka, T. Tokii, and S. Kida 312

Electron-transfer Kinetics of Transition-metal Complexes in Lower Oxidation States. Part II. The Electrochemical Electron-transfer Rate of the $Cr(bipy)_3^{+}/Cr(bipy)_3$ System as Measured by the Galvanostatic Double-pulse Method ..... T. Saji and S. Aoyagui 389

Heterocyclic Azomethine Compounds and Their Reduction Products as Analytical Reagents. II. The Reaction of 1-Picolylideneamino-2-naphthol with Zinc(II) ..... M. Otomo, K. Fukui, and K. Kodama 455

Transition-metal Complexes of Pyrrole Pigments. IX. Divalent and Trivalent Iron Chelates of Dipyrromethenes ..... Y. Murakami, Y. Matsuda, K. Sakata, and K. Harada 458

Notes:

The ESR Spectra of Bis(*t*-butyl and ethyl acetoacetato)copper(II) Complexes in Various Hydrocarbon Solvents ..... H. Yokoi 497

Computer-assisted In-phase AC Polarography: Determination of Cadmium(II) Ions ..... S. Fujiwara, M. Hirota, K. Sawatari, H. Kojima, and Y. Umezawa 499

Preferential Precipitation of Δ-$[Co(en)_3]_2(d\text{-}C_4H_4O_6)_3$ by Alcohol Addition to the $[Co(en)_3]^{3+}$-*d*-CHO Aqueous Systems ..... H. Yoneda, G. Takemoto, and U. Sakaguchi 513

Organic and Biological

Methylene Analogs of Cyclobutenedione. VIII. The Oxidation of 1-Halo- and 1,2-Dihalo-3,4-bis(diphenylmethylene)cyclobut-1-enes ..... F. Toda, F. Monden, and M. Ohi 316

Photocycloaddition of Thiocarbonyl Compounds to Multiple Bonds. X. Photocycloaddition of *O*-Alkyl Thiobenzoates to Olefins ..... A. Ohno, T. Koizumi, and Y. Akasaki 319

The Structure-Taste Relationships of the Dipeptide Esters Composed of L-Aspartic Acid and β-Hydroxy Amino Acids ..... Y. Ariyoshi, N. Yasuda, and T. Yamatani 326

The Photochemical and the Thermal Reaction of Dimethyl *trans*-Spiro[2.6]nona-4,6,8-triene-1,2-dicarboxylate ..... K. Saito, T. Toda, and T. Mukai 331

The Formation of Substituted Quinazolines from Substituted Indoles by the Sensitized Photo-oxygenation in the Presence of Ammonium Acetate ..... K. Maeda, T. Mishima, and T. Hayashi 334

Reaction of 1-Methyl-4-phenylquinazolinium Salts with Diazomethane ..... Y. Yamada, T. Oine, and I. Inoue 339

4-Oxo-1,2,3,4-tetrahydroquinazolines. V. Ring Expansion Reaction of 1-Methyl-3-pheyyl-4-oxo-3,4-dihydroquinazolinium Bromide with Diazoalkanes ..... Y. Yamada, T. Oine, and I. Inoue 344

The Oxidation of 1,3-Butadienes with Nitric Acid into 2,5-Dihydrofurans ..... F. Toda and E. Todo 348

Total Synthesis of Natural Acetylenic Analogues of Isorenieratene and Renieratene ..... T. Ike, J. Inanaga, A. Nakano, N. Okukado, and M. Yamaguchi 350

Polymerization of Vinyl Compounds with Hydridodinitrogentris(triphenylphosphine)cobalt(I) ..... Y. Kubo, A. Yamamoto, and S. Ikeda 393

Tri(hetero)substituted Carbonium Ions. VII. Effect of the Ring System on the Ambident Reactivity of Cyclic Dithiocarbamidium Ions ..... T. Nakai, K. Hiratani, and M. Okawara 398

Synthetic Studies by the Use of Carbonates. I. The Nucleophilic Substitution Reaction of Ethylene Carbonate with Amine Hydrohalides ..... T. Yoshino, S. Inaba, H. Komura, and Y. Ishido 405

Substituent Effects on the ^{13}C and ^{1}H Chemical Shifts of 1-Phenyl-1,3-butadiene and Phenylallene ..... T. Okuyama, K. Izawa, and T. Fueno 410

Codimerization of Ethylene and Styrene Catalyzed by Bis(triphenylphosphine)-σ-Arylnickel(II) Halide–Trifluoroboron Etherate ..... N. Kawata, K. Maruya, T. Mizoroki, and A. Ozaki 413

8,5′-*O*-Cyclonucleosides of Tubercidin ..... K. Anzai and M. Matsui 417

Asymmetric Reactions. IX. On the Catalytic Hydrogenation of Olefinic Compounds with Bis(dimethylglyoximato)cobalt(II)-base Complex ..... S. Takeuchi, Y. Ohgo, and J. Yoshimura 463

The Thermal [2+2] Cycloaddition of 1-Halo-2-(9-fluorenylidene)ethylene to Afford Fluorene-9-spiro-1′-[2′-halo-3′-(9-flurenylidene)-4′-halomethylene]cyclobutane ..... F. Toda, H. Motomura, and H. Oshima 467

Peptides. V. Some Carbonates of Ethyl 2-Hydroximino-2-cyanoacetate and Related Compounds as Esterification Reagents for Peptide Synthesis ..... M. Itoh 471

The Reaction of Ethyl Ethoxymethylenecyanoacetate with Its Hydrazino Derivatives ..... K. Saito, I. Hori, M. Igarashi, and H. Midorikawa 476

Autoxidation of Aromatic Hydrocarbons Catalyzed with Cobaltic Acetic Acid Solution. III. Oxidation of *p*-Toluic Acid ..... M. Kashima and Y. Kamiya 481

Phenanthro[4,5-*bcd*]furan Derivatives. II. A Synthesis of 3-Hydroxyphenanthro[4,5-*bcd*]furan (Morphenol) ..... T. Horaguchi and T. Shimizu 485

Notes:

Carbonylation of Phenylacetylene by Rhodium Carbonyl Chloride ..... J. Kiji, S. Yoshikawa, and J. Furukawa 490

Catalytic Activities of Salicylaldehyde Derivatives. IV. A Synthesis of 2-Formyl-3-hydroxyphenyltrimethylammonium Chloride ..... M. Ando and S. Emoto 501

The Reaction of Styryl Sulfoxides or Sulfones with Boranes ..... N. Miyamoto, D. Fukuoka, K. Utimoto, and H. Nozaki 503

The Reactions of 2-Hydroxystilbenes with Lead Tetraacetate and Manganic Acetate ..... K. Kurosawa and K. Nogami 505

The Activating Effects of Amino Groups in Diazo-coupling Reactions ..... Y. Hashida, J. Takenaka, and K. Matsui 507

Hydroxyl Stretching Frequencies and Conformations of 4-Chromanol, 4-Thiochromanol, and 4-Thiochromanol 1,1-Dioxide ..... K. Hanaya, S. Onodera, S. Awano, and H. Kudo 509

MO Calculation for Interactions of Cu(II) and Co(III) with Hydroperoxides ..... S. Imamura and S. Sakaki 511

No. 3

General and Physical

Magnetic Susceptibilities of Octacoordinated Uranium(IV) Complexes ..... T. Yoshimura, C. Miyake, and S. Imoto 515

Theory of Ion Cyclotron Resonance Power Absorption for Nonreactive and Reactive Ions ..... K. Aoyagi 519

Chemical Behavior of Intermediates Produced in Sulfuric Acid Glass by Gamma Irradiation. I. Reactivities of Mobile Electrons with Inorganic Ions ..... T. Sasaki 529

The Dianion of 9,9′-Bixanthenylidene and Its Reaction with Oxygen. A Contribution to Photochromism ..... M. Hoshino, M. Matsui, and M. Imamura 534

The Crystal Structure of *dl*-1,1,4aα-Trimethyl-2α-hydroxy-8β-methoxy-1,2,3,4,4a,5,6,7,8,9-decahydrophenanthrene ..... A. Furusaki, N. Hamanaka, and T. Matsumoto 537

The Crystal and Molecular Structure of *meso*-(2*S*, 4*s*, 6*R*)-2,4,6-Heptanetriol ..... S. Kuribayashi 545

The Thermal Decomposition of Formaldehyde in the Presence of Nitric Oxide ..... K. Tadasa, N. Imai, and T. Inaba 548

The Thermal Behavior of Silanol Groups of Silica Gel as Studied by Infrared Spectroscopy. I ..... S. Kondo, M. Muroya, and K. Fujii 553

Partially-occupied d-Orbitals Participating in the Activation of Molecular Oxygen ..... K. Ohkubo 557

The Magnetic Properties of Manganese (II) Phthalocyanine. II ..... H. Miyoshi 561

Ultrasonic Study on Solute-Solvent Interaction in Aqueous Systems of Ethers ..N. Takenaka and K. Arakawa 566

Isomerization of 2-Pinene Catalyzed by Solid Acids ..R. Ohnishi, K. Tanabe, S. Morikawa, and T. Nishizaki 571

Studies on the Mechanism of Methanol Oxidation on Zinc Oxide by Dynamic Treatments of Chemisorbed Species under the Reaction Conditions ..... A. C. Herd, T. Onishi, and K. Tamaru 575

A New Technique Using the Polynomials Approximation and Trapezoidal Average Method for Estimating Kinetic Rate Constants in Systems of Linear or Nonlinear Differential Equations ..... K. Ohkubo, K. Tsuchihashi, and H. Sakamoto 579

The Molecular and Crystal Structure of the Cyclic Tetramer of Formaldehyde, 1,3,5,7-Tetroxocane ..... Y. Chatani, T. Yamauchi, and Y, Miyake 583

Proton Nuclear Magnetic Resonance Spectroscopy of Partially-deuterated *n*-Pentanes ..... M. Kondo, I. Ando, R. Chûjô, and A. Nishioka 589

Phase Equilibria of the Systems Containing Silver Iodide and Alkali Iodide. II. AgI–NaI–H_2O System ..... N. Nishimura and T. Higashiyama 593

An ESR Study of Nitric Oxide Adsorbed on Silica Gel ..... M. Iwaizumi, S. Kubota, and T. Isobe 597

A New Method for Determination of Self-diffusion Coefficients in Solid Solutions ..... S. Kurihara, K. Fueki, and T. Mukaibo 600

The Triplet States of 1,3,5-Tricyanobenzene Complexes with Methyl Substituted Benzenes ..... S. Matsumoto, S. Nagakura, Y. Shimozato, H. Hayashi, and J. Nakamura 604

Metachromasy. II. Interaction between Sodium Polyphosphates and Crystal Violet with Special Emphasis on the Effect of Chain Lengths of the Polymer on the Metachromasy Band ..... K. Yamaoka, M. Takatsuki, K. Yaguchi, and M. Miura 611

Dielectric Relaxation and Molecular Structure. IX. Dielectric Behavior of 1-Propanol and 1-Butanol in a Variety of Solvents ..... T. Koshii, E. Arie, M. Nakamura, H. Takahashi, and K. Higasi 618

Dielectric Relaxation and Molecular Structure. X. Dielectric Behavior of 2-Propanol, 2-Methylpropanol, and 2-Butanol in a Variety of Solvents ..... T. Koshii, E. Arie, M. Nakamura, H. Takahashi, and K. Higasi 623

Vibrational Structures in the He(I) Photoelectron Spectra of Carboxylic Acids ..... I. Watanabe, Y. Yokoyama, and S. Ikeda 627

Molecular Structure of *N*-Methylformamide as Studied by Gas Electron Diffraction ..... M. Kitano and K. Kuchitsu 631

A Reinvestigation of the Normal Vibrations of Thioacetamide ..... A. Ray and D. N. Sathyanarayana 729

The Magnetic Circular Dichroism of Some Copper(II) β-Diketone Chelate Complexes in Various Media ..... H. Kato and T. Kimura 732

Hole-particle Formalism for the Electronic Spectra of Long Chain Polyenes ..... S. Basu 735

Notes:

Estimation of the Structures and Electronic States of Radicals Using the INDO-SCFMO Method. I. Alkoxyl Radicals ..... K. Ohkubo and F. Kitagawa 739

Very-high-dose-rate Radiolysis of *n*-Butane in the Gas Phase. The Effect of the Addition of Electron Scavengers ..... Y. Hatano, S. Takao, H. Namba, T. Ueno, and S. Shida 741

The Effect of Copper(II) on the Formation and Thermal Change of Synthetic β-FeOOH ..... K. Inouye, H. Imamura, K. Kaneko, and T. Ishikawa 743

Flash-Spectroscopic Study of Phthalazine ..... N. Kanamaru, S. Nagakura, and K. Kimura 745

A Solvent-Extraction Study of Zinc(II) Complexes with Several Divalent Anions of Carboxylic and Inorganic Acids ..... H. Moriya and T. Sekine 747

The Migration of Electronic Excitation Energy in Copolymers of *N*-Vinylcarbazole with a Small Content of Styrene or Vinyl Acetate ..... K. Okamoto, A. Yano, S. Kusabayashi, and H. Mikawa 749

INDO Calculation of ^{13}C Chemical Shifts by the Finite Perturbation Method ..... H. Fukui 751

Analytical and Inorganic

The Chemistry of Americium. II. The Behavior of Am(III), Am(V), and Am(VI) in Column Chromatography, with Bis(2-ethylhexyl)phosphoric Acid Used as the Extractant ..... M. Hara and S. Suzuki 635

ESR of Copper(II) Complexes in Magnetically Non-dilute Crystals. II. Polycrystals of Various Bis(amino acidato)copper(II) Complexes ..... H. Yokoi 639

The Reaction of Bis(2-pyridinecarbonitrile)copper(II) Chloride with Methanol and Various Amines ..... S. Suzuki, M. Nakahara, and K. Watanabe 645

Syntheses of *N,N'*-Bis(1-acetonylethylidene)ethylenediamine Complexes of Rare Earth Perchlorates ..... N. Yoshida, A. Matsumoto, and J. Shiokawa 648

Thermal Reaction in a Series of Ammineisothiocyanatochromium(III) Complexes in Solid State ..... H. Oki, M. Yasuoka, and R. Tsuchiya 652

Infrared Spectra of Nitrosylplatinum (^{14}NO and ^{15}NO) Complexes ..... E. Miki, K. Mizumachi, T. Ishimori, and H. Okuno 656

Derivatographic Studies on Transition Metal Complexes. XIII. Thermal Decomposition of $[Ni(N_2H_4)_3]X_2$ Complexes ..... R. Tsuchiya, M. Yonemura, A. Uehara, and E. Kyuno 660

Reactions of Bis(acetylacetonato)palladium(II) with Triphenylphosphine and Nitrogen Bases ..... S. Baba, T. Ogura, and S. Kawaguchi 665

Proton Magnetic Resonance Spectra of Metal Ammine Complexes. I. Cobalt(III) Pentammine Series ..... H. Yoneda and Y. Nakashima 669

Notes:

Reactions of Tris(acetylacetonato)manganese(III) and -cobalt(III) with 1,10-Phenanthroline and α-Metylstyrene ..... K. Kaeriyama 753

The Synthesis of Crystalline Hydrated Double Carbonates of Rare Earth Elements and Sodium ..... A. Mochizuki, K. Nagashima, and H. Wakita 755

Studies on Preparation of High Purity Sulfur. II. Removal of Trace Amounts of Selenium and Tellurium in Sulfur by Means of Distillation with Silver ..... H. Suzuki, Y. Osumi, M. Nakane, and Y. Miyake 757

Studies on Preparation of High Purity Sulfur. IV. Effect of the Distillation with Adsorbent and Silver on the Removal of the Impurities in Sulfur ..... H. Suzuki, K. Higashi, and Y. Miyake 759

The Extraction and Spectrophotometric Determination of Vanadium(IV) with Tiron ..... Y. Wakamatsu and M. Otomo 761

A Novel Type of Penta Coordinated Iron(III) Complex $FeCN[SSeCNR_2]_2$ ($R=CH_3$, C_2H_5) ..... S. Nakajima and T. Tanaka 763

Notiz über neue $\dot{S}$–$\bar{N}$–Ylid-Komplexe von Platin(II) ..... G. Matsubayashi, M. Toriuchi, und T. Tanaka 765

Benzo[h]quinolin-10-yl-*N* Iridium(III) Complexes ..... M. Nonoyama 767

Kinetic Studies of the Nickel Glycollate Complex Formation in Solution by the Pressure-jump Method ..... S. Harada, Y. Okuue, H. Kan, and T. Yasunaga 769

Organic and Biological

The Cyclopolymerization of Triallyl Citrate ..... A. Matsumoto, T. Ohata, and M. Oiwa 673

Bromine Addition to Chloronorbornene Derivatives ..... Y. Yanagida, H. Shigesato, M. Nomura, and S. Kikkawa 677

Some Electrophilic Substitution Reactions of 2-Hydroxyazulene Derivatives ..... T. Nozoe, T. Asao, and M. Oda 681

Photo-Beckmann Rearrangements of Oximes of Androsterone and 13α-Androsterone ..... H. Suginome and T. Uchida 687

The Chlorination of Olefins with Antimony(V) Chloride ..... S. Uemura A. Onoe, and M. Okano 692

Studies of Peptide Antibiotics. XXX. Syntheses of Gramicidin S Analogs Containing *N*-Methylleucine in Place of Leucine ..... H. Sugano, H. Abe, M. Miyoshi, T. Kato, and N. Izumiya 698

Effect of Pressure on the Rate of Solvolysis. Formolysis of 1-(*p*-Substituted benzyl)ethyl Tosylates ..... A. Sera, C. Yamagami, and K. Maruyama 704

Carbon-13 Nuclear Magnetic Resonance Studies of Biphenyl Derivatives. II. FT-NMR of Halobiphenyls ..... M. Imanari, M. Kohno, M. Ohuchi, and K. Ishizu 708

Radical Addition Reactions to the Carbonyl Group. I. The Reaction of Aliphatic Aldehydes with Di-*t*-butyl Peroxide ..... K. Maruyama, M. Taniuchi, and S. Oka 712

The Unsensitized Photooxidation of (+)-Limonene, 1,2-Dimethylcyclohexene, and *endo*-Dicyclopentadiene ..... T. Sato and E. Murayama 715

A New Reagent for the Syntheses of *N*-Monoalkylated Hydroxylamines; *N*-Tosyl-*O*-2,4,6-trimethylbenzylhydroxylamine ..... Y. Isowa and H. Kurita 720

Stable Crystalline Complexes of Diphenylcyclopropenone with Substuted Acetic Acids ..... I. Agranat and S. Cohen 723

Implication of Diazonium Cations as Intermediates in the Photorearrangement of Azoxybenzenes ..... N. J. Bunce 725

Notes:

Micellar Effect of Lauryldimethylsulfonium Halides on the Hydrolysis of *p*-Nitrophenyldecanoate ..... T. Okonogi, Y. Yano, and W. Tagaki 771

The Reaction of Substituted Tropones with Diphenylketene ..... T. Asao, N. Morita, and N. Iwagame 773

The Reaction of Isocyanates with Carboxylic Acids and Thiocarboxylic Acids ..... S. Motoki, T. Saito, and H. Kagami 775

The Induced Optical Rotatory Dispersion of Mercury Orange-Phosphoenolpyruvate Carboxylase ..... M. Miyamura and S. Suzuki 777

A Study on Phosphorylation by Means of 8-Quinolyl Phosphates ..... H. Takaku, Y. Shimada, and K. Arai 779

Direct Syntheses of Methyl 2-Deoxy-2-alkoxycarbonylamino-D-glucopyranoside from 2-Amino-2-deoxy-D-glucose ..... S. Otani 781

The Use of Hydroxybenzoic Acids to Polymers. II. Polyether-amides Obtained from the Interfacial Polycondensation of *p*-Carboxyphenoxyacetic Acid Dichloride with Aliphatic Diamines ..... I. Hirao, T. Kito, T. Fujimoto, and H. Yoshihara 783

The Preparation of 2,2-Bis(trifluoromethyl)-1,3-heterocycles from 2,2,4,4-Tetrakis(trifluoromethyl)-1,3-dithietane ..... T. Kitazume and N. Ishikawa 785

Die Kinetische Racemat-Spaltung des 1-Phenyläthanols und 1-Phenyläthylamins durch die aktivierten *N*-Tosyl-L-prolin-ester ..... T. Sakan, Y. Mori, T. Yamazaki, T. Yamashita, und N. Nakamura 787

No. 4

General and Physical

Role of Germanate Catalyst in the Transformation of Germanium Dioxide ..... M. Yonemura and Y. Kotera 789

Effect of Surrounding Atmosphere in the Transformation of Germanium Dioxide ..... M. Yonemura and Y. Kotera 793

Vibrational Spectrum of Trisdimethylaminocyclopropenium Perchlorate ..... Z. Yoshida, Y. Tawara, S. Hirota, and H. Ogoshi 797

Characteristic Studies on Dealumination of Faujasite-type Zeolite ..... K. Tsutsumi, H. Kajiwara, and H. Takahashi 801

Normalization of Potentials in Propylene Carbonate, Ethylene Carbonate, *N,N'*-Dimethylformamide, and Dimethyl Sulfoxide to the Water Scale Studied by Polarographic Method ..... N. Matsuura, K. Umemoto, M. Waki, Z. Takeuchi, and M. Omoto 806

Standard Potentials of Alkali Metals, Silver, and Thallium Metal/Ion Couples in *N,N'*-Dimethylformamide, Dimethyl Sulfoxide, and Propylene Carbonate ..... N. Matsuura, K. Umemoto, and Z. Takeuchi 813

Infrared Absorption Spectra and Normal Coordinate Analysis of Metal-DL-Tyrosine Chelates ..... Y. Inomata, T. Inomata, and T. Moriwaki 818

Crystal and Molecular Structure of (−)-*erythro*-1′-(2,5-Dimethoxyphenyl)-3′-diethylaminobutyl Acetate Hydrobromide ..... Y. Masuda, Y. Iitaka, and H. Hamano 825

Novel Radical Salt Polymers as Hydrogenation Catalyst of α-Olefins ..... H. Kawazura, Y. Yamamoto, T. Ohmori, K. Murano, and H. Inokuchi 829

The Crystal Structure of 2,4,6-Triphenylpyrylium-1,1,3,3-tetracyanopropenide, $[(C_{23}H_{16}O)^{+}\cdot(C_7HN_4)^{-}]$ ..... T. Tamamura, T. Yamane, N. Yasuoka, and N. Kasai 832

The Relative Determination of the Soret Coefficients of Electrolytes. IV .... T. Ikeda and Y. Yamamoto 838
Vacuum Ultraviolet Absorption and Photoelectron Spectra of Aliphatic Ketones ..... H. Ogata, J. Kitayama, M. Koto, S. Kojima, Y. Nihei, and H. Kamada 958
The Effects of the Composition of Raw Cadmium Sulfide on the Characteristics of Cadmium Pigments .... M. Tsunashima and H. Takahashi 962
Molecular Vibrations and Force Fields of Alkyl Sulfides. VII. Polythiomethylene (PTM) and Polythiomethylene-d_2(PTM-D2), and Their Model Compounds: $CH_3S(CH_2S)_nCH_3$ (n=1—3)..... M. Ohsaku 965
The Derivation of the r_s Structure by the Use of a Nondiagonal Weight Matrix for Rotational Constants .. C. Hirose 976
Mechanistic Studies on the Photooxidation of Chlorpromazine in Water and Ethanol ..... T. Iwaoka and M. Kondo 980
Photocyclization of [2.2]Metacyclophane at 2537 Å ..... K. Sorimachi, T. Morita, and H. Shizuka 987
Photochemistry of the Electron Donor-Acceptor System. I. Exciplex Fluorescence and the Fluorescence of the Charge-Transfer Complex in the Aromatic Hydrocarbon–Fumaronitrile System ..... Y. Shirota, I. Tsushi, and H. Mikawa 991

Notes:

Photoreaction of 2,2-Diphenylvinyl Ketones ..... K. Maeda, I. Moritani, and A. Sonoda 1018
Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. VIII. Benzidine-2,4-Dinitrophenol Complexes..... G. Saito and Y. Matsunaga 1020
Dielectric Relaxation and Molecular Structure. XII. Dipole Moments and Dielectric Relaxation Times of Rigid Molecules in Solutions ..... T. Nagai, Y. Koga, H. Takahashi, and K. Higasi 1022
X-Ray Photoelectron Spectroscopy of Oxine-Metal Chelates..... T. Yoshida and S. Sawada 1024
Spectral Difference of the A and B Forms of Deoxyribonucleic Acid ..... Y. Nishimura, K. Morikawa, and M. Tsuboi 1043
Nonideality of Ammonia Solutions in *N,N*-Dimethylformamide..... R. Patnaik and W. G. Lloyd 1045

Analytical and Inorganic

Thermal Decomposition Reaction of Halogenoamminecruthenium(III) Halide Complexes ..... A. Ohyoshi, S. Hiraki, and H. Kawasaki 841
The Synthesis and Spectroscopic Study of Some Bis(tertiary-phosphine)bis(*N,N*-dialkylselenocarbamate) Complexes of Palladium(II) and Platinum(II) ..... K. Tanaka and T. Tanaka 847
Kinetic Studies of the Electron Transfer Reaction in Iron(II) and Iron(III) Systems. VI. Reaction in *N,N*-Dimethylformamide..... G. Wada, Y. Sahira, K. Ohsaki, and F. Shinoda 851
Association Involving Optically Active Ions. III. Pfeiffer Effect in Tris(phenanthroline)-zinc(II) or -nickel(II)–Alkaloid Systems ..... K. Ogino and T. Kumagai 855
The Gas Chromatographic Determination of Selenium in Plant Material with 4-Nitro-*o*-phenylenediamine ..... Y. Shimoishi 997
Copper(II) Complexes of Histidine and Its Related Compounds in Aqueous Solutions..... H. Aiba, A. Yokoyama, and H. Tanaka 1003

Note:

Preparation and Properties of Dimeric Dialkoxo-bridged Chromium(III) Complex with 3-Bromo-2,4-pentanedione..... K. Kasuga, T. Itou, and Y. Yamamoto 1026

Organic and Biological

Bromine Addition Reaction to Olefins with Magnesium Bromide and Aroyl Peroxides ..... M. Ōkubo, H. Kusakabe, T. Hiwatashi, and K. Kishida 860
Photoreactions of *N*-Vinylcarbazole Induced by Metal Salts. VI. Cyclodimerization Catalyzed by Copper(II) Perchlorate in Aprotic Solvents ..... M. Asai, H. Matsui, and S. Tazuke 864
A Study of the Interaction of Diethylcadmium with Lewis Bases as Solvents ..... O. Nakasugi, M. Ishimori, and T. Tsuruta 871
Products Obtained by the Reaction of Trichlorotrimethylbenzenes with Fuming Nitric Acid. Side-chain Nitrooxylation *versus* Oxidation to Unsaturated Cyclic Ketones ..... H. Suzuki, S. Maruyama, and T. Hanafusa 876
Effect of Pressure on the Rate of Solvolysis. Volume Parameters and Solvolysis Mechanism ..... C. Yamagami, A. Sera, and K. Maruyama 881
The Structure of Ternstroemiaxanthin, a New Aldehydic C_{40}-Carotenoid..... K. Kikuchi and M. Yamaguchi 885

Kinetic Studies on the Hydrolysis of Ethyl Benzenesulfinates .. M. KOBAYASHI, R. NISHI, and H. MINATO 888
Hydrogen Exchange Reactions of Sulfilimines and Sulfoximines ..... M. KOBAYASHI, A. MORI, and H. MINATO 891
Cationic Arylation. VII. Cationic Phenylation and Benzoyloxylation of Aromatic Compounds with Benzoyl Peroxide in Trifluoroacetic Acid ..... N. KAMIGATA, H. MINATO, and M. KOBAYASHI 894
The Action of Alkali on Inosine. The Formation of 5-Amino-1-β-D-ribofuranosyl-4-imidazolecarboxamide and 9-β-D-Ribopyranosyl Hypoxanthine ..... Y. SUZUKI 898
Reactions of 2-Cyano-2-dimethylamino-1,3-dithiolane..... K. HIRATANI, T. NAKAI, and M. OKAWARA 904
Synthesis and Reactions of 4-Dimethylsulfuranylidene-2,3-dioxotetrahydrofuran Derivatives ..... K. HAGIO, N. YONEDA, and H. TAKEI 909
Synthesis of 6-(2-Amino-2-deoxy-β-D-glucopyranosylamino)- and 6-(β-D-Glucopyranosylamino)-purine..... S. FUKATSU, A. SAWA, and S. UMEZAWA 917
Synthesis of Alkoxythallium(III) Compounds of Olefins and Their Reaction with Copper Halides and Pseudohalides .....S. UEMURA, K. ZUSHI, A. TABATA, A. TOSHIMITSU, and M. OKANO 920
The Cyclocopolymerization of Triallyl Citrate with Several Vinyl Monomers ..... T. OHATA, A. MATSUMOTO, and M. OIWA 928
The Reduction of Methyl Acetate with Several Hydrosilanes under γ Irradiation..... R. NAKAO, T. FUKUMOTO, and J. TSURUGI 932
Chemistry of Nitrosoimines. VI. Attempted Syntheses of Some Resonance Stabilized Nitrosoimines and Their UV Spectra ..... K. AKIBA, S. MATSUNAMI, C. EGUCHI, and N. INAMOTO 935
Preparation of Stable 2,3-Dihydroindolizines by the Reactions of Pyridinium Methylides with Various Acrylates ..... A. KAKEHI and S. ITO 938
The Photochemistry of 2-Quinolinecarbonitriles. II. A Mechanism of the Photoinduced Substitution Reaction ..... N. HATA and T. SAITO 942
2,3,5,6-Tetra-aryl-1,2,4,5-tetra-azapentalenes. A New Heteroaromatic System ..... A. MATSUMOTO, J. H. LEE, M. YOSHIDA, and O. SIMAMURA 946
Cyclization Reactions of 1,2-Bis(2-cyanophenyl)propionitriles. I. Structure of the "Red Pigment" Formed by the Base-catalyzed Cyclization of 1,2-Bis-(2-cyano-3-methoxyphenyl)propionitrile in the Presence of Diethyl Carbonate ..... K. ANDO, T. TOKOROYAMA, and T. KUBOTA 1008
Cyclization Reactions of 1,2-Bis(2-cyanophenyl)propionitriles. II. Synthesis of 5-Amino-4,7-dimethoxy-11*H*-indeno[1,2-*c*]isoquinolin-11-one ..... K. ANDO, T. TOKOROYAMA, and T. KUBOTA 1014

NOTES:

Triisopropoxy Boroxine as a Reducing Agent for Substituted Benzaldehydes ..... H. IIDA, H. KITAMURA, K. SEITA, and K. YAMADA 1028
Stereospecific Reductions of Isoilludin S and M on Alumina Chromatography ..... A. ICHIHARA and T. MATSUMOTO 1030
Charge-transfer Complex of Sydnones ..... A. CHINONE and M. OHTA 1032
Iminodithiocarbonates. VI. Reaction of Sulfur-substituted Carbonium Ion with Sodium Azide ..... Y. UENO and M. OKAWARA 1033
Aromatic Substitution of Olefins. XXI. Reaction of *o*-Alkylstyrenes with Benzene in the Presence of Palladium-(II) Acetate ..... M. WATANABE, M. YAMAMURA, I. MORITANI, Y. FUJIWARA, and A. SONODA 1035
Synthesis of Alkoxycyclopropane Derivatives, Intermediates in the Synthesis of Hirsutic Acid ..... F. SAKAN, E. SUGIURA, T. MATSUMOTO, H. SHIRAHAMA, and H. HASHIMOTO 1037
Some Substituted 1*H*,4*H*- and 1*H*,5*H*-Pyrazolo[4,3-*c*]pyrazoles. Syntheses and Properties..... J. H. LEE, A. MATSUMOTO, M. YOSHIDA, and O. SIMAMURA 1038
Cycloaddition Reaction of Troponoids with Dimethyl Maleate ..... H. TAKESHITA, Y. SHOJI, and S. ITÔ 1041

Applied

Mechanisms for the Reaction of Phenol with Methanol over the ZnO–Fe_2O_3 Catalyst .... T. KOTANIGAWA 950
The Pore Structure of the ZnO–Fe_2O_3 Catalyst ..... T. KOTANIGAWA and M. YAMAMOTO 954

No. 5

General and Physical

Faraday Parameters of the Magnetic Circular Dichroism of Praseodymium Trichloride and ThuliumTrichloride in Poly(vinyl alcohol) Film ..... Y. Kato and K. Nishoka 1047

Thermodynamic Properties of Moderately-concentrated Poly(γ-benzyl-L-glutamate) Solutions ..... A. Okamoto, K. Kubo, and K. Ogino 1054

Isotopic Study of Water Gas Reaction Catalyzed by Platinum ..... M. Masuda and K. Miyahara 1058

A New Hypothesis Regarding the Surface Acidity of Binary Metal Oxides ..... K. Tanabe, T. Sumiyoshi, K. Shibata, T. Kiyoura, and J. Kitagawa 1064

Properties of Ampholytic Surfactant, *N*-Alkyl-β-alanine ..... T. Okumura, K. Tajima, and T. Sasaki 1067

Mechanism of High-energy-induced Luminescence of Solid 2,3-Dimethylbutane Containing Toluene at 77K ..... T. Miyazaki, Y. Fujitani, and Z. Kuri 1070

The Raman Spectra and Molecular Conformations of Surfactants in Aqueous Solution and Crystalline States ..... H. Okabayashi, M. Okuyama, T. Kitagawa, and T. Miyazawa 1075

Electronic Excited States of the Intramolecular Exciplex and Charge-transfer Complex in (9,10-Dicyanoanthracene)$(CH_2)_3$-(Naphthalene) ..... M. Itoh, T. Mimura, and T. Okamoto 1078

The Crystal Structure of the 1:1 Complex of Pyromellitic Dianhydride with *trans*-Stilbene ..... T. Kodama and S. Kumakura 1081

The Electronic Structures of Cu(II) Complexes as Determined by Means of the Configurational Interaction Method ..... S. Kobinata 1085

Mechanisms of Hydrogenation and Hydrogen Exchange of Propylene over the Electron Donor-Acceptor Complexes of Polynaphthoquinones with Potassium ..... Y. Iwasawa, S. Ogasawara, T. Onishi, and K. Tamaru 1089

Polarographic Studies of Dispersed Dyes Solubilized in Surfactant Solutions. I. Kinetics of Orange OT Solubilized in Surfactant Solutions ..... H. Suzuki, N. Shinozuka, and S. Hayano 1093

Theoretical Calculation of the Carbon-13 Chemical Shifts of Some Normal Alkanes by the Linear Combination of Gauge Invariant Atomic Orbitals-Molecular Orbital Theory Using INDO and MINDO/2 Methods ..... I. Ando, A. Nishioka, and M. Kondo 1097

The Optically-active Vibration and Elastic Constant of Soda-niter ..... A. Yamamoto, Y. Shiro, and H. Murata 1105

Radiation Chemical Studies with Cyclotron Beams. III. The Heavy-ion Radiolysis of Liquid Aliphatic Ketones ..... M. Matsui and M. Imamura 1113

The Crystal Structure of (±)-1-Benzyl-5-phenyl-1-azacycloheptan-4-one Hydrochloride, $C_{19}H_{21}NO \cdot HCl$ ..... K. Fukuyama, S. Shimizu, S. Kashino, and M. Haisa 1117

Counterion Effect on the Titration Behavior of Poly(itaconic acid) ..... N. Muto 1122

Conformations of Prolyl Residues in Oligopeptides ..... T. Ashida and M. Kakudo 1129

Vibration-Rotation Spectrum of Methyl Fluoride. II. Analysis of $\nu_3+\nu_6$ Band ..... J. Nakagawa, I. Suzuki, T. Shimanouchi, and T. Fujiyama 1134

Electrical Properties of Ferric Oxyhydroxides ..... K. Kaneko and K. Inouye 1139

Brillouin Scattering and Elastic Constants of Tetragonal Pentaerythritol ..... H. Matsuura and T. Miyazawa 1143

Temperature Dependence of the Lattice Vibrations of Triglycine Sulfate ..... N. Kaneko, H. Takahashi, and K. Higasi 1148

Interactions of β-Naphthol and β-Naphthylamine in Their Excited Singlet States with Triethylamine ..... A. Matsuzaki, S. Nagakura, and K. Yoshihara 1152

X-Ray Photoelectron Spectroscopy of *p*-Benzoquinone, Hydroquinone, and Their Halogen-Substituted Derivatives ..... T. Ohta, M. Yamada, and H. Kuroda 1158

Notes:

Solubility Studies of Ion-pairs in Organic Solvents ..... T. Takamatsu 1285

The Application of the Regular Solution Theory to the Ion-pair Systems ..... T. Takamatsu 1287

Analytical and Inorganic

The Decomposition of Hydrogen Peroxide with Metal Complexes. I. The Catalytic Decomposition of Hydrogen Peroxide by the Ammine-Copper(II) Complex Ions in an Aqueous Solution ..... K. Hayakawa and S. Nakamura 1162

Change from Metastable Cubic to Stable Tetragonal Form of Submicron Barium Titanate ..... S. Naka, F. Nakakita, Y. Suwa, and M. Inagaki 1168

Polarographic Studies of the Associated Ion-pairs of Polyphosphate with the Hexaamminecobalt(III) Ion .... N. Matsuura, K. Umemoto, M. Takizawa, and Y. Sasaki 1172

Synergism in the Liquid-Liquid Extraction and the Extraction Chromatography of Manganese(II), Cobalt(II), and Zinc(II) in the Thenoyltrifluoroacetone–Trioctylphosphine Oxide–Cyclohexane Extraction System.. ..... T. Honjo, M. Horiuchi, and T. Kiba 1176

Classification of Polarographic Current-Potential Curves of Inorganic Anions as a Function of Reduction Potentials ..... Y. Umezawa, M. Hirota, and S. Fujiwara 1181

Stereochemical Studies of *N*-Methyl-(*S*)-alaninatocobalt(III) Complexes with Chiral Tetramines. II. Cobalt(III)–*N*-Methyl-(*S*)- and (*R*)-alaninate–*N*,*N*′-Bis(*β*-aminoethyl)-1 (*R*), 2(*R*)-diaminocyclohexane Systems.. ..... M. Saburi and S. Yoshikawa 1184

Study in Some Heterochelates. III. Cu(II), Ni(II), Zn(II), or Cd(II)+Histidine or Ethylenediaminetetraacetic Acid+Polyphenols Systems ..... I. P. Mavani, C. R. Jejurkar, and P. K. Bhattacharya 1280

Note:

ESR Spectra of Quadridentate Salicylaldehyde Schiff Base Complexes of Cobalt(II) and Copper(II) in Chloroform and in Dichloromethane ..... M. Chikira, T. Kawakita, and T. Isobe 1283

Organic and Biological

Studies on Amino-hexoses. XVIII. A Simplified Method of Preparing 2-Amino-3-*O*-(D-1′-carboxyethyl)-2-deoxy-D-glucose 6-(Dihydrogen Phosphate) (Muramic Acid 6-Phosphate) .. S. Hase and Y. Matsushima 1190

The Formation of Ethers from Borneol and Isoborneol in the Presence of Boron Trifluoride Etherate ..... K. Nagai, M. Nakayama, A. Matsuo, S. Eguchi, and S. Hayashi 1193

Synthetic Studies of Carbohydrate Derivatives with Photochemical Reactions. X. An Unusual Photo-induced Addition of Lactonitrile to Some Enoses ..... K. Matsuura, K. Senna, Y. Araki, and Y. Ishido 1197

Dehydrogenation of 2-(1-Cyclohexenyl)cyclohexanone with Palladium Catalyst ..... K. Imafuku, J. Oda, K, Itoh, and H. Matsumura 1201

Catalytic Hydrogenation of Cyclic Olefins on Nickel Catalysts ..... M. Kajitani, Y. Sasaki, J. Okada, K. Ohmura, A. Sugimori, and Y. Urushibara 1203

Regio- and Stereo-selectivities in the Epoxidations of Limonene, *endo*-Dicyclopentadiene, and *exo*-Dicyclopentadiene ..... T. Sato and E. Murayama 1207

The Photo-Fries Rearrangement of Aryloxy-1,3,5-triazines ..... Y. Ohto, H. Shizuka, S. Sekiguchi, and K. Matsui 1209

Addition of Methanesulfenyl Chloride and Sulfur Chloride to 1,4-Dimethyl-3,6-dimethylene-2,5-piperazinedione and Substitution of the Adducts ..... J. Yoshimura, Y. Sugiyama, K. Matsunari, and H. Nakamura 1215

Aninosugars. XXII. Syntheses and Properties of 6-Deoxy-6- and 3-Deoxy-3-guanidino-D-hexoses ..... J. Yoshimura, T. Sekiya, and Y. Ogura 1219

Solvent Effects in Diazo-coupling Reactions ..... Y. Hashida, H. Ishida, S. Sekiguchi, and K. Matsui 1224

Oxytocin Analogues Containing No Disulfide Bond. III. The Synthesis of Three Analogues of 1,6-Aminosuberic Acid-Oxytocin ..... T. Yamanaka and S. Sakakibara 1228

Superacids and Their Derivatives. III. Kinetics of the Oxonium Ion Formation from Superacid Esters and Tetrahydropyran. Oxonium-Ester Equilibria ..... S. Kobayashi, T. Ashida, and T. Saegusa 1233

A Macrocyclic Enzyme Model System. Acyl Transfer from *p*-Nitrophenyl Carboxylates to Paracyclophane Oxime ..... Y. Murakami, J. Sunamoto, and K. Kano 1238

Photoreactions of Heteroaromatic Compounds. IV. Solvent and Acidity Dependence of the Photoreactions of Nicotinic Acid and Its Derivatives ..... F. Takeuchi, T. Sugiyama, T. Fujimori, K. Seki, Y. Harada, and A. Sugimori 1245

Photochemistry of Heterocyclic Compounds. VI. The Photochemical Behavior of Phenazine in Hydroxylic Solvents ..... S. Wake, Y. Otsuji, and E. Imoto 1251

Photochemistry of Heterocyclic Compounds. VII. The Photochemical Behavior of Phthalazine and Quinoxaline in Acidified Alcohols ..... S. Wake, Y. Takayama, Y. Otsuji, and E. Imoto 1257

Substituent Effects in the Benzofuran System. I. Proton and Carbon-13 Chemical Shifts ..... T. Okuyama and T. Fueno 1263

Substituent Effects in the Benzofuran System. II. Electrophilic Bromination ..... T. Okuyama, K. Kunugiza, and T. Fueno 1267

Substituent Effects in the Benzofuran System. III. Cationic Polymerization ..... T. Okuyama, K. Kunugiza, and T. Fueno 1271

Perkin Synthesis of Bromobenzalphthalides. Their Reactions with Amines and Hydrazine ..... A. M. Islam, A. M. Khalil, and A. A. El-Maghraby 1274

Bitter Principles of *Isodon umbrosus* Hara. The Structures of Umbrosin A and B ..... I. Kubo, T. Kamikawa, T. Isobe, and T. Kubota 1277

Notes:

The Reaction of α-Ethoxybenzyl *t*-Butyl Peroxide with Phenylmagnesium Bromide ..... M. Ōkubo, H. Saitō, and T. Tomiyoshi 1289

The Preparation of 5,8-Quinolinediol and 1,4-Acridinediol Derivatives ..... S. Oguchi 1291

Lilac Aldehydes ..... S. Wakayama and S. Namba 1293

Synthetic Studies of Amino Acids by the Use of Copper(II) Complexes. V. The Preparation of Hydroxy Amino Acids by a Set of Improved Procedures ..... S. Ohdan, T. Ichikawa, Y. Araki, and Y. Ishido 1295

Reaction of *N*-Nitroso-1,2,3,4-tetrahydroisoquinolines with Base. A New Method for the Conversion of 1,2,3,4-Tetrahydroisoquinolines into 3,4-Dihydroisoquinolines ..... K. Sakane, K. Terayama, E. Haruki, Y. Otsuji, and E. Imoto 1297

Pyrolysis of Tris(2,3-dibromopropyl) Phosphate and Its Related Compounds ..... Y. Okamoto, N. Kimura, and H. Sakurai 1299

Effects of Substituents on pK_a and τ_{OH} Values of Hydroxyaryl-1,3,5-triazines; σ_p^- Values of 1,3,5-Triazinyl Groups ..... Y. Ohto, Y. Hashida, S. Sekiguchi, and K. Matsui 1301

Photo-induced Condensation Reaction of *p*-Quinones with Aldehydes ..... K. Maruyama and Y. Miyagi 1303

Synthesis of (4-Pyridyl)-1,2-ethanediol ..... H. S. Aaron and J. I. Miller 1305

No. 6

General and Physical

A Study of Catalysis by Metal Phosphates. II. A Kinetic Study of the Dehydrogenation of 2-Propanol over the Cadmium Phosphate Catalyst and an Investigation of the Acid-base Character of the Catalyst ..... F. Nozaki and H. Ohta 1307

The Microwave Spectra and r_0, r_s, and r_m Structures of Ethylene Oxide ..... C. Hirose 1311

Chemical Behavior of Intermediates Produced in Sulfuric Acid Glass by Gamma Irradiation. II. Yield of Trapped Hydrogen Atoms in the System Containing Metallic Ions ..... T. Sasaki 1319

Vibrational Spectra and Normal Coordinate Analysis of Bis(methylthio)mercury ..... N. Iwasaki, J. Tomooka, and K. Toyoda 1323

A Photo-selection Study of the Charge-transfer Phosphorescence ..... T. Amano and Y. Kanda 1326

A Study of Quenching of Triplets by Ferrocene ..... M. Kikuchi, K. Kikuchi, and H. Kokubun 1331

Medium Effects for Single Ions in Dimethyl Sulfoxide, *N,N'*-Dimethylformamide, and Propylene Carbonate ..... N. Matsuura and K. Umemoto 1334

Solvent Effects on the Formation of Aromatic Hydrocarbon Ions and Mo^{5+} on the Surface of Al_2O_3–MoO_3 ..... H. Ueda 1338

The Diffusion of Gases at High Pressures. V. The Diffusion of CTH_3 in the CO_2–Ar System ..... S. Takahashi 1342
The Crystal Structure of Acridinium Bis(7,7,8,8-tetracyanoquinodimethanide), $ARD^+(TCNQ)_2^-$ and Some Remarks on the Possibility of a Peierls Distortion of a Linear Chain of TCNQ..... H. Kobayashi 1346
Some Environmental Effects on the shf Lines in the ESR Spectra of Vanadyl Tetraphenylporphin ..... M. Sato and K. Kwan 1353
Studies of the ESR Spectra of Semiquinone Anions of Xanthene Dyes. Variation in the Linewidth of the Phloxine Semiquinone Anion with the Temperature and the Viscosity in Protic Solvents ..... K. Kimura and M. Imamura 1358
Anomalous Light Scattering by Poly(2-vinylpyridine) in Methanol ..... N. Sakamoto, M. Yoshida and S. Arichi 1363
Gel Filtration of Starch–Iodine System..... M. Kodama and T. Sasaki 1368
Mass Spectrometric Study of the Primary Processes in Photochemical Reactions. II. Mass Spectra of Methyl and Ethyl Radicals ..... S. Yamashita 1373
Solution Properties of Phycocyanin. I. Studies of Dissociation-Association by Sedimentation Measurement ..... T. Saito, N. Iso, and H. Mizuno 1375
Three Methods to Look at Walsh-type Diagrams Including Nuclear Repulsions ..... Y. Takahata and R. G. Parr 1380
The Structure and Reactivity of Organic Ions in Gas-phase Radiolysis. VIII. The $C_7H_7^+$ Ion from Toluene and Ethylbenzene .....N. Sagi, Y. Yamamoto, K. Nagaoka, S. Takamuku, and H. Sakurai 1387
Molecular Structure of Tungsten Oxide Tetrachloride by Gas Electron Diffraction ..... K. Iijima and S. Shibata 1393
On the EPR Emission Spectrum of Transient Naphthosemiquinone Radical ..... H. Yoshida, J. Sohma, and T. Warashina 1396
ESR Study on Transient Radicals in Plastic Crystals under Electron Irradiation ..... H. Shiraishi, H. Kadoi, K. Hasegawa, Y. Tabata, and K. Oshima 1400
The Crystal Structure of *dl*-1,2,3,4,5,6-Hexahydro-6,11,12,12-tetramethyl-2,6-methano-3,11-propano-3-benzazocine Hydrochloride Monohydrate .....M. Kimura, T. Nakajima, S. Inaba, and H. Yamamoto 1404
The Crystal Structure of Pyrazinic Acid ..... F. Takusagawa, T. Higuchi, A. Shimada, C. Tamura, and Y. Sasada 1409

Notes:

A New Lanthanoid Double Trifluoride Compound $(Er_{0.3}Nd_{0.7})F_3$.....K. Okamura and S. Yajima 1531
The Direct-current Conductivity of Silica Gel .....M. Muroya and S. Kondo 1533
The Alkylation of Phenol over the ZnO–Fe_2O_3 Catalyst.....T. Kotanigawa and K. Shimokawa 1535
The Effect of Ion Exchange on the 1,2-Epoxybutane-Isomerization Activity ..... S. Matsumoto, M. Nitta, and K. Aomura 1537
Solid Complex Formation of Malonic Acid with Glycine.....J. Nishijo 1539
The ESR Spectra of Michler's Ketone Anion Radicals ..... H. Fujita, S. Kako, J. Yamauchi, H. Ohya-Nishiguchi, and Y. Deguchi 1541
Energized Vinyl Radical Formation in the Photolysis of Ethylene.....H. Hara and I. Tanaka 1543
Polarized Raman Spectra of $(NH_4)_2SO_4$ Single Crystals .....K. Uchida, H. Takahashi, and K. Higasi 1545

Analytical and Inorganic

Studies of Ruthenium Complexes. VII. Photochemical Reactions of *cis*-Dihalogenotetraammineruthenium(III) Complexes in Aqueous Solutions ..... A. Ohyoshi, N. Takebayashi, Y. Hiroshima, K. Yoshikuni, and K. Tsuji 1414
A Solubility Study of Coacervates of Magnesium, Calcium and Aluminum Highpolyphosphates in Acid Solutions ..... T. Kanazawa, T. Umegaki, Y. Kitajima, and T. Ogawa 1419
Electron Transfer Reaction between Thallium(I) and Thallium(III) in the Presence of Cerium(IV) in Aqueous Solution .....G. Wada and K. Tamaki 1422
Kinetic Studies of the Reactions of the Ferricyanide Ion with Cobalt(II)–Aminopolycarboxylate Complexes ..... H. Ogino, M. Takahashi, and N. Tanaka 1426

Kinetics of Multidentate Ligand Substitution Reactions. XVI. Substitution Reactions of 1,2-Cyclohexanediamine-*N,N,N',N'*-tetraacetic Acid (CyDTA) with the Zinc(II)-Ethylenediaminemonoacetate (EDMA) and -Ethylenediamine-*N,N'*-diacetate (EDDA) Complexes and That of Ethylenediamine-*N,N,N',N'*-tetraacetic Acid (EDTA) with the Nickel(II)-EDDA Complex ..... M. KODAMA 1430

A Polarographic Study of the Zinc(II)-Ethylenediamine-*N,N'*-diacetate (EDDA) and -Triethylenetetraamine (Trien) Complexes ..... M. KODAMA 1434

Copper(II) Complexes of Glycyl-L-histidine, Glycyl-L-histidylglycine, and Glycylglycyl-L-histidine in Aqueous Solution..... H. AIBA, A. YOKOYAMA, and H. TANAKA 1437

Cobalt-59 Nuclear Magnetic Resonance Study of Cobalt(III) Complexes. Empirical Rules for the Cobalt-59 Chemical Shifts and Line Widths of $[Co^{III}(en)_x(NH_3)_{6-2x-y}L_y]$-type Complexes..... F. YAJIMA, Y. KOIKE, A. YAMASAKI, and S. FUJIWARA 1442

Crystal Structure of Bis(iminodiacetamide)copper(II) Perchlorate..... M. SEKIZAKI 1447

NOTE:

A Polarographic Study of the Complex Formation Equilibria of Lead(II) Ions with Glutamate and Ethylenediamine-*N,N'*-diacetate Anions ..... M. KODAMA 1547

Organic and Biological

The Reaction of *N*-Chlorocarbamoylethyl Starch with Amines in an Aqueous Alkaline Medium; Reactions of an Isocyanate Group ..... M. HIGUCHI, K. TAKESHITA, and R. SENJU 1451

A Mechanistic Study of the Acetolyses of 3-Chloropropene Sulfide and 2-Chloroethyl Methyl Sulfide ..... I. TABUSHI, Y. TAMARU, and Z. YOSHIDA 1455

Photo-induced Polar Addition of Protic Solvents to Cycloalkenones. Evidence for the Ground-state *trans* Isomers as Chemically-reactive Intermediates ..... R. NOYORI and M. KATÔ 1460

The Cationic Oligomerization of 2-Methylfuran and the Characteristics of the Oligomers ..... A. ISHIGAKI and T. SHONO 1467

The Diazotization of 2-Aminoazulene Derivatives. The Formation of 2-Diazo-2,6-azulenoquinone Derivatives ..... T. NOZOE, T. ASAO, H. SUSUMAGO, and M. ANDO 1471

The Relative *cis/trans* Reactivity in the Hydrochlorination of 1-Arylpropenes ..... K. IZAWA, T. OKUYAMA, and T. FUENO 1477

The Addition of 2,4-Dinitrobenzenesulfenyl Chloride to *cis*- and *trans*-1-Arylpropenes and Some Other Olefins ..... K. IZAWA, T. OKUYAMA, and T. FUENO 1480

Total Syntheses of Holomycin, Thiolutin, and Aureothricin..... K. HAGIO and N. YONEDA 1484

A Polarographic Study of Aryl-substituted Tetra-aza- and Hexa-aza-pentalenes in Dimethylformamide ..... A. MATSUMOTO, J. H. LEE, M. YOSHIDA, and O. SIMAMURA 1490

Preparations and Properties of 5-Phenyl-5*H*[1,2,3]-triazolo[4,5-*c*][1,2,5]-oxadiazole, -thiadiazole, and -selenadiazole ..... A. MATSUMOTO, M. YOSHIDA, and O. SIMAMURA 1493

Formation and Conformation of Benzoyloxylated Sulfur-containing Heterocycles ..... T. SUGAWARA, H. IWAMURA, and M. ŌKI 1496

Reactions of Iodocarbenoid of Zinc. II. The Iodocyclopropanation of Olefins with Diethylzinc and Iodoform ..... S. MIYANO and H. HASHIMOTO 1500

Spin Trapping of Free Radicals Generated from Arylazo *p*-Tolyl Sulfones ..... M. KOBAYASHI, E. AKIYAMA, H. MINATO, and N. KITO 1504

The Reaction of the Hydroxamic Acid Group in Polymer with *p*-Nitrophenyl Acetate ..... T. KUNITAKE, Y. OKAHATA, and R. ANDO 1509

Synthetic Study of Colchicine ..... M. KATO, F. KIDO, M. WU, and A. YOSHIKOSHI 1516

The Base-induced Reactions of 2-Halogeno-1,3-diketones in a Variety of Solvents ..... T. WAKUI, Y. OTSUJI, and E. IMOTO 1522

NOTES:

Synthesis of Sesquirosefuran ..... S. KUMAZAWA, K. NISHIHARA, T. KATO, Y. KITAHARA, H. KOMAE, and N. HAYASHI 1530

Solvolytic Reactions in Dipolar Aprotic Solvents. Reaction Rates of the Tertiary Aralkyl System ..... T. UCHIDA, S. MARUI, Y. MIYAGI, and K. MARUYAMA 1549

Reaction Paths in the Photochemical Isomerization between *cis*-Butadiene and Cyclobutene ..O. KIKUCHI 1551

The Reactions of Several Carbonyl Compounds with Hexamethyl-phosphoric Triamide ..... S. Arimatsu, R. Yamaguchi, and M. Kawanisi 1553

Determination of Enantiomeric Purity of 1-Phenylalkanols Using a Chiral NMR Shift Reagent ..... K. Yamamoto, T. Hayashi, and M. Kumada 1555

Applied

Fractionation of Polyvinyl Chloride Pitch by Vacuum Sublimation..... M. Kamo, H. Kanda, Y. Sato, and N. Setaka 1527

Note:

Radiation Synthesis of Methylal from Methanol Solution of Ferric Chloride ..... Y. Ikezoe, S. Sato, and K. Oshima 1557

No. 7

General and Physical

Calculation of the Carbon-13 NMR Chemical Shifts of Linear and Branched Paraffins and Saturated Cyclic Hydrocarbons ..... K. Takaishi, I. Ando, M. Kondo, R. Chûjô, and A. Nishioka 1559

On the Behavior of O_2^- and O^- Radicals over V_2O_5–SiO_2 Catalyst ..... S. Yoshida, T. Matsuzaki, T. Kashiwazaki, K. Mori, and K. Tarama 1564

A New Pyrochlore System, $Pb(Ti_x \cdot Sn_{1-x})O_3$, and Its Transition to a Perovskite System ..... S. Shirasaki, H. Yamamura, K. Muramatsu, and K. Takahashi 1568

A Study of the Thermal Degradation of Several Halogen-containing Polymers by Torsional Braid Analysis .... N. Furusho, T. Komatsu, and T. Nakagawa 1573

A Study of the Upper and Lower Bounds of the Second-order Perturbation Energy..... T. Yamabe, K. Tanaka, S. Ishimaru, and K. Fukui 1578

The Crystal Structure of the Cupric Complex with Succinimide. II. Potassium tetrakis(succinimidato)copper (II) Hexahydrate and Lithium tetrakis(succinimidato)copper(II) Monohydrate..... T. Tsukihara, Y. Katsube, K. Fujimori, K. Kawashima, and Y. Kan-nan 1582

Isoelectric Point of Manganese Oxide ..... T. Morimoto and S. Kittaka 1586

Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. IX. Polynitrobenzoic Acid Complexes with Aromatic Monoamines ..... Y. Matsunaga and R. Osawa 1589

Dielectric Relaxation and Molecular Structure. XI. Dielectric Behavior of Various Polar Molecules in the Supercooled *o*-Terphenyl Solution..... M. Nakamura, H. Takahashi, and K. Higasi 1593

Spectroscopic and Theoretical Studies on the Protonation to Xanthone Derivatives..... K. Mizutani, K. Miyazaki, K. Ishigaki, and H. Hosoya 1596

Studies of the π–π^* Absorption Bands of *p*-Quinones and *o*-Benzoquinone..... A. Kuboyama, S. Matsuzaki, H. Takagi, and H. Arano 1604

High-resolution Photoelectron Spectroscopy of Naphthacene Polycrystal by Means of Helium 21.22 eV Resonance Line ..... K. Seki, Y. Harada, K. Ohno, and H. Inokuchi 1608

Effect of Cesium Counterion on the ESR Spectrum of Tetracyanoethylene Anion Radicals ..... M. Ogasawara, S. Inaba, H. Yoshida, and K. Hayashi 1611

Molecular Orbital Study on the H_2O–HCl System ..... S. Shibata, F. Hirota, and Y. Ota 1616

An MO Calculation of 1,3-Dipolar Cycloaddition between Ethylene and Diazomethane..... T. Minato, S. Yamabe, S. Inagaki, H. Fujimoto, and K. Fukui 1619

Magnetic Susceptibility of Magnesium 2,2′-Dipyridylide in Its THF Adducts ..... T. Horiba, K. Hara, M. Inoue, and M. Kubo 1624

Topochemical Studies. III. The Crystal and Molecular Structures of Crotonic Acid, $CH_3CH{=}CHCOOH$, and Crotonamide, $CH_3CH{=}CHCONH_2$ ..... S. Shimizu, S. Kekka, S. Kashino, and M. Haisa 1627

UV-Spectra of Fluorenyl Salts in the Binary Mixtures of DME and Benzene ..... K. Takaya and N. Ise 1632

Notes:

High-precision Flow Meter for Gas Chromatography ..... Y. Hori and R. Kobayashi 1791

Tritium Fractionation in the Crystallization of Aluminum Alums from Their Aqueous Solutions ..... H. Tanaka, H. Ando, and H. Negita 1793

Extrinsic Photoconductivity of *N*-Ethylcarbazole Single Crystals ..... K. Kato, M. Yokoyama, and H. Mikawa 1795

ENDOR Studies of 1,3,5-Triphenylverdazyl Radical and Its Methyl Derivatives V. ..... K. Mukai, T. Yamamoto, M. Kohno, N. Azuma, and K. Ishizu 1797

Analytical and Inorganic

Polarographic and Anodic Stripping Polarographic Studies of Aliphatic Polyamine Complexes of Several Metal Ions ..... M. Komatsu 1636

The Solvent Extraction of the Copper–Pyrocatechol Violet Chelate with Tridodecylethylammonium Bromide .. .. Y. Shijo 1642

Conditions for the Formation of Fe_3O_4 by the Air Oxidation of $Fe(OH)_2$ Suspensions ..... M. Kiyama 1646

The Reduction of [Ru(Hedta)(H_2O)] at the Mercury Electrode and Subsequent Reactions ..... K. Shimizu, T. Matsubara, and G. P. Satô 1651

The Complexing of the Sodium Ion in Acetonitrile with Other Solvents. Investigation by the Use of a Cation-sensitive Glass Electrode ..... K. Izutsu, T. Nomura, T. Nakamura, H. Kazama, and S. Nakajima 1657

Effect of Ethanol on the Outer-sphere Association of *Λ*- or *Δ*-Tris(ethylenediamine)cobalt(III) with *d*-Tartrate Ions in Aqueous Solutions ..... H. Yoneda, K. Miyoshi, S. Suzuki, and T. Taura 1661

Potentiometric and Spectrophotometric Studies of Fluoride Complexes of Uranium(IV) ..... H. Kakihana and S. Ishiguro 1665

Binuclear Metal Complexes. IX. Syntheses and Magnetic Properties of Copper(II) and Nickel(II) Complexes of Schiff Bases Derived from 3-Formylsalicylic Acid and Alkyl Amines ..... M. Tanaka, H. Okawa, T. Tamura, and S. Kida 1669

Notes:

The Back-extraction Behavior of Chelate Compounds. I. The Extraction and the Back-extraction of the Metal Oxinates ..... T. Honjo, K. Ameno, M. Horiuchi, and T. Kiba 1799

The Standard Free Energy of the Formation of $LaFeO_3$ at 1204 °C ..... N. Kimizuka and T. Katsura 1801

Organic and Biological

Diels-Alder Reactions of 5,5,5-Trichloro-3-penten-2-one and Related Compounds ..... S. Tsuboi, Y. Ishiguro, and A. Takeda 1673

The Synthesis of 1,3-Thiazines by the Reaction of Non-isolable *β*-Imino (dithiocarboxylic) Acids with Aldehydes ..... T. Miyauchi, Y. Kadokura, N. Fukada, and T. Takeshima 1678

The Iodination of Benzene with Iodine in the Thallium(III) Trifluoroacetate-Trifluoroacetic Acid System .... N. Ishikawa and A. Sekiya 1680

The Oxyphenylation of Cyclic Olefins Conjugated to the Benzene Ring by Means of Palladium Chloride ..... H. Horino, M. Arai, and N. Inoue 1683

Pyridoxal Model Compounds. I. The Regioselective Formylation of Methoxy-substituted Aromatic Compounds ..... M. Iwata and S. Emoto 1687

The Reaction of Alcohols with Hexamethylphosphoric Triamide ..... S. Arimatsu, R. Yamaguchi, and M. Kawanisi 1693

Asymmetric Hydroformylation of Styrene. The Effects of the Reaction Conditions on the Stereoselectivity .... M. Tanaka, Y. Watanabe, T. Mitsudo, and Y. Takegami 1698

The Novel Synthesis of L-Hydroxyproline from D-Glutamic Acid ..... C. Eguchi and A. Kakuta 1704

The One-electron Reduction of Carbonium Ions. VI. The Trapping of the Cycloheptatrienyl Radical with 2-Methyl-2-nitrosopropane in the Course of the Zinc Reduction of the Tropylium Ion ..... K. Okamoto and K. Komatsu 1709

Oxidation by Iron(III) Complexes. VIII. The Reactions of Iron(III) Chloride with Toluene and Substituted Toluenes ..... H. Inoue, M. Izumi, and E. Imoto 1712

Carbonylation of Alcohols, Olefins, and Saturated Hydrocarbons by CO in the Ag(I)–H_2SO_4 System ..... Y. Souma and H. Sano 1717

Reaction of 2-Benzoylamino-2-methylpropionamidine and 2-Benzoylaminoacetamidine with Bifunctional Compounds ..... H. Uchida, A. Chinone, and M. Ohta 1720

Photoinduced Reactions. LXXVII. On the Applicability of Excited Acetone to Induce Photoaromatization of Dihydroheteroaromatics ..... T. Matsuura and Y. Ito 1724

Règles Concernant la Stéréochimie de L'Hydrogénation Catalytique ..... E. Brown et M. Ragault 1727

Stéréochimie des Perhydrobenz(*e*) Indénones-2 ..... E. Brown et M. Ragault 1729

Inositol Derivatives. 7. Azidolysis of Disulfonates of *myo*-Inositol and 1,2-*O*-Cyclohexylidene Derivative ..... T. Suami, S. Ogawa, S. Oki, and H. Sato 1731

Inositol Derivatives. 8. Azidolysis of Tri- and Tetra-sulfonates of *myo*-Inositol ..... T. Suami, S. Ogawa, S. Oki, and H. Kunitomo 1737

Chemiluminescence of Succinylfluorescein and Related Compounds. I. Emitting Species Produced by the Reaction of Succinylfluorescein with Oxygen in Aprotic Solvents ..... I. Kamiya and K. Aoki 1744

The Reaction of 3-(ω-Ethoxycarbonylacetyl)-2*H*-cyclohepta[*b*]furan-2-one with Active Methylene Compounds ..... T. Nozoe, K. Takase, T. Nakazawa, S. Sugita, and M. Saito 1750

A Base-induced Elimination Reaction of Phenylsulfonylacetates. I. General Aspect and Stereochemistry ..... A. Sera, H. Mano, and K. Maruyama 1754

A Base-induced Elimination Reaction of Phenylsulfonylacetates. II. Effects of the Base and the Solvent on the Stereochemistry of Elimination ..... H. Mano, A. Sera, and K. Maruyama 1758

Optically Active Triptycenes. VII. Synthesis, Optical Resolution and Absolute Configuration of 3-Chloro and 4-Chloro-7-substituted Triptycenes ..... M. Hashimoto, Y. Shimizu, F. Ogura, and M. Nakagawa 1761

Synthetic Photochemistry. III. The Addition Reaction of Methyl Acetopyruvate to Cycloheptatriene: An Ene Reaction and $(4+2)\pi$ and $(6+2)\pi$ Cycloadditions ..... H. Takeshita, A. Mori, and S. Itô 1767

Stereochemical Studies on the Nuclear Alkylation of Phenols with 1-Phenylethyl Chloride and the Acidic Rearrangement of the 1-Phenylethyl Ethers of Phenols in the Phenolic Solvents ..... K. Okamoto, T. Kinoshita, and O. Makino 1770

A Convenient Method for the Preparation of Ketones by the Reaction of Grignard Reagents with Carboxylic Acid Derivatives ..... M. Ahaki, S. Sakata, H. Takei, and T. Mukaiyama 1777

The Configuration at C-21 of Hydroxyhopanone ..... K. Sekiguchi, H. Kanemoto, Y. Hirao, T. Tsuyuki, and T. Takahashi 1781

Studies on Benzoquinolines(f) and (h). Part II ..... R. P. Tyagi and B. C. Joshi 1786

Synthesis of Succin-as-eins ..... R. Gopal, P. C. Gupta, and S. P. Garg 1789

Notes:

The Synthesis of Methylthio- and Bis(methylthio)phenazine Derivatives ..... M. Tada 1803

The Reaction of Dicarboximides with Benzonitrile in Liquid Ammonia ..... C. Kashima, M. Yamamoto, S. Kobayashi, and N. Sugiyama 1805

A Platinum Complex Bound to Iodinated Polystyrene by a Platinum-Carbon σ-Bond ..... N. Kawata, T. Mizoroki, and A. Ozaki 1807

Dissociation Constants of 2-Aminotropones ..... K. Imafuku, Y. Takata, and H. Matsumura 1809

Base Catalyzed Oxygenation of 3,5-Di-*t*-butylpyrocatechol and Its Related Compounds ..... A. Nishinaga, T. Itahara, and T. Matsuura 1811

Decomposition of 1,4-Dimethoxybenzene Radical Cations in CH_3NO_2–$AlCl_3$ System ..... A. Nishinaga, H. Hayashi, and T. Matsuura 1813

Carbon-13 Nuclear Magnetic Resonance Spectra of α-Ribonucleosides ..... H. Sugiyama, N. Yamaoka, B. Shimizu, Y. Ishido, and S. Seto 1815

A Novel Rearrangement of Styryl Sulfoxide Induced by Phosphorus Pentachloride ..... N. Miyamoto, D. Fukuoka, K. Utimoto, and H. Nozaki 1817

Syntheses of α-Hydroxyamino Acids from α-Keto Acids ..... A. Ahmad 1819

Applied

NOTE:

Film Rupture of Polyvinyl Alcohol in the Presence of Surfactants ..... W. NAGASHIRO, M. TANAKA, T. OKABE, and M. OIKAWA 1821

No. 8

General and Physical

Reductions of Cobalt(III) Complexes by Ferrous Chelates. II. The Reductions of Cobalt(III) Complex with Polymeric Ligands by Means of Some Ferrous Chelates ..... Y. KURIMURA, I. SEKINE, E. TSUCHIDA, and Y. KARINO 1823

The Thermal Decomposition and Reduction of Silver(I) Oxide ..... I. NAKAMORI, H. NAKAMURA, T. HAYANO, and S. KAGAWA 1827

An Infrared Study of the Steric Effects of Alkyl Substituents on the N–H Stretching Absorptions of *sym*-Dialkylureas ..... Y. MIDO 1833

The Molar Volume and Entropy of Adsorbed Methane on Porasil ..... Y. HORI and R. KOBAYASHI 1838

The Electro-Initiated Polymerization of Acrylamide in an Aqueous Solution of Trifluoroacetic Acid and Potassium Trifluoroacetate ..... Z. OGUMI, I. TARI, Z. TAKEHARA, and S. YOSHIZAWA 1843

Force Field of Allene ..... K. TANABE and S. SAËKI 1847

The Kinetics and Mechanism of Hydrogen Adsorption and Hydrogen-deuterium Equilibration on the Copper Surface ..... M. KIYOMIYA, N. MOMMA, and I. YASUMORI 1852

The Crystal Structure of (+)-2,5-Dimethoxy-8-chlorotriptycene ..... T. KANEDA, N. SAKABE, and J. TANAKA 1858

The Microwave Spectrum of 3,3,3-Trifluoropropene ..... S. SAITO and F. MAKINO 1863

The Reaction of β-Hydroxyalkylmercuric Perchlorate with Sodium Formate in an Aqueous Solution ..... S. SHINODA and Y. SAITO 1868

The Crystal and Molecular Structure of β-Lactose ..... K. HIROTSU and A. SHIMADA 1872

The Reaction of Hot Deuterium Atoms with *cis*-2-Butene ..... S. SATO, S. NISHIDA, and K. HOSOYA 1880

Calculation of the Widths for Isotropic Parts of Highly-polarized Raman Lines: Vibrational Relaxation of Infrared-inactive Levels ..... M. KAKIMOTO and T. FUJIYAMA 1883

Electrical Properties of Evaporated Thin Films of Copper Phthalocyanine ..... Y. SAKAI, Y. SADAOKA, and H. YOKOUCHI 1886

The Radiolytic-chain Dechlorination of Polychlorinated Biphenyls in Alkaline 2-Propanol Solutions ..... T. SAWAI, T. SHIMOKAWA, and Y. SHINOZAKI 1889

Vibrational Energy Transfer of Some X_2CO-type Molecules on Collision with Argon ..... Y. YONEZAWA and T. FUENO 1894

Magnetic Properties of Nonbenzenoid Aromatic Hydrocarbons ..... H. YAMAUCHI and T. NAKAJIMA 1898

Ligand-Ligand Interaction in the β-Diketonato Complexes of Be^{2+}, Al^{3+}, and Zn^{2+} ..... T. OHNO and S. KATO 1901

Studies of the Chemiluminescence of Several Xanthene Dyes. VI. A Kinetic Analysis of a Blue-fluorescent Product in the Chemiluminescent Reaction of Eosin Y with Hydrogen Peroxide ..... I. KAMIYA and K. AOKI 1908

The Electronic Spectra of Diphenylacetylene and 1,3-Butadiyne ..... T. TAKABE, M. TANAKA, and J. TANAKA 1912

The Electronic Spectra of Paracyclophadiynes ..... T. TAKABE, M. TANAKA, and J. TANAKA 1917

Estimation of Individual Ionic Activity Coefficients from Conductivity Data on Strong Electrolytes in Dilute Aqueous Solutions ..... R. TAMAMUSHI 1921

The Catalytic Activity of Some Mixed Oxides for Depolymerization of Paraldehyde ..... S. P. WALVEKAR and A. B. HALGERI 1927

NOTES:

Substitution Effect in the Hydrogenation of Monoalkylbenzenes with Ruthenium Catalyst ..... T. YOSHIDA 2061

Molten-State Spectra of Anisyl-*p*-benzoquinones ..... J. AIHARA 2063

The Hydrolysis of Several Purine Nucleosides with Strong Hydrochloric Acid or Cation Exchange Resin .... Y. Suzuki 2077

Analytical and Inorganic

A Polarographic Study of the Rates of the Dissociation Reactions of Aminopolycarboxylato-zinc(II), -lead(II), and -cadmium(II) Complexes ..... M. Kodama, K. Namekawa, and T. Horiuchi 2011
Oxidation of Chromium(II) Complexes. I. Kinetics of the Oxidation of Tris(2,2′-bipyridine)- and of Tris-(1,10-phenanthroline)chromium(II) Complexes with Hexaamminecobalt(III) Ion ..... Y. Narusawa, M. Kimura, and K. Nakano 2017
Effects of Additives on Solid State Reaction. I. A Kinetic Study of the Effects of Halides of the Formation of $MgAl_2O_4$ ..... S. Shimada, R. Furuichi, and T. Ishii 2026
Effect of Additive on Solid State Reaction. II. A Thermoanalytical Study of the Effect of Fluorides on the Formation of $MgAl_2O_4$ in Initial Stage ..... S. Shimada, R. Furuichi, and T. Ishii 2031
The Thermal Deaquation-Anation Reactions of Aquopentamminechromium(III) Complexes in the Solid State ..... K. Nagase and H. Yokobayashi 2036
Studies on the Metal Complexes of Quinoxaline Derivatives. III. Metal Chelates of 2-Quinoxalinecarboxylic Acid and Its *N*-Oxides ..... Y. Kidani, K. Ohira, and H. Koike 2040
Crystal Structure of Chloro-1-(2-thiazolylazo)-2-naphtholatopalladium(II) Dioxane Solvate ... M. Kurahashi 2045
The Mechanism of the Hydrolysis of Condensed Phosphates. I. The Solvent Effect on the Hydrolysis of Pyro- and Tripolyphosphates ..... M. Watanabe 2048

Notes:

The Absorption Spectra of the Electrochemically-generated Unstable Species of Tris(2,2′-bipyridine)cobalt(II) by Reflectivity Measurements at the Silver Electrode in Propylene Carbonate ..... Y. Sato 2065
The Crystal Structure of Bis(1-(2-thiazolylazo)-2-naphtholato)nickel(II) ..... M. Kurahashi 2067
The Preparation of Mixed Cobalt(III) Complexes of *N,N*-Bis(2-aminoethyl)glycine with the Carbonate or Oxalate Ion ..... S. Nakashima and M. Shibata 2069
Miscibility of Lithium with Lithium Chloride and Lithium Chloride–Potassium Chloride Eutectic Mixture ..... T. Nakajima, R. Minami, K. Nakanishi, and N. Watanabe 2071

Organic and Biological

The Telomerization of Methyl Acetate and Methyl Cyanoacetate with Ethylene ..... T. Fujimoto and I. Hirao 1930
Studies of Tritylated Sucroses. III. NMR Studies of Tritylacetylsucroses ..... T. Ōtake 1938
Asymmetric Synthesis in the Oxymercuration Reaction Using Optically Active Mercuric Salts ..... T. Sugita, Y. Yamasaki, O. Itoh, and K. Ichikawa 1945
Catalytic Hydration of Pyridinecarbonitriles in the Presence of $[Cu(en)_2]Cl_2 \cdot 2H_2O$ and $CuCl_2 \cdot 2H_2O$ ..... K. Watanabe and K. Murayama 1948
Syntheses of Pyrrolotropone Derivatives from Benzocycloheptene-5,6-dione Monoarylhydrazones. II. Syntheses of Benzo[5,6]cyclohept[1,2-*b*]-indole-6,11,12-triones ..... K. Fujimori and K. Yamane 1951
Attempted Synthesis of Diphenylmethylenecyclobutanetrione and the Anomalous Behavior of Its Monoacetal, 4,4-Dimethoxy-2-diphenylmethylenecyclobutane-1,3-dione ..... F. Toda and K. Yuwami 1954
Dopaquinone and Related Compounds : Reactions with *o*-Phenylenediamine ..... Y. Omote, T. Hirama, and T. Komatsu 1957
The Photochemical Reaction of 1,4-Naphthoquinone Derivatives with Hydrogen Donors ..... K. Maruyama and S. Arakawa 1960
The Addition of Arylpalladium Chloride to 1,5-Cyclooctadiene and *endo*-Dicyclopentadiene ..... A. Kasahara, T. Izumi, K. Endo, T. Takeda, and M. Ookita 1967
The Stereochemistry of the Addition of Trimethylaluminum to Decalones and Methyl-substituted Cyclohexanones ..... T. Suzuki, T. Kobayashi, Y. Takegami, and Y. Kawasaki 1971
Reaction of Biguanides and Related Compounds. X. The Cyclization of Arylbiguanides with Acyl Isothiocyanates ..... M. Furukawa, M. Goto, and S. Hayashi 1977
Preparation and Thermal Decomposition of Acyl Carbamoyl Peroxides .... R. Okazaki and O. Simamura 1981
Crystal and Molecular Structure of ω-Amino Acids, ω-Aminosulfonic Acids and Their Derivatives. VII. The Crystal and Molecular Structure of DL-Carnitine Hydrochloride ..... K. Tomita, K. Urabe, Y. B. Kim, and T. Fujiwara 1988

New Benzofuranosesquiterpenes from *Farfugium japonicum*. Farfugin A and Farfugin B ..... H. NAGANO, Y. MORIYAMA, Y. TANAHASHI, and T. TAKAHASHI 1994

Furanoeremophilane-6β,10β-diol and Its Derivatives. New Furanosesquiterpenes from *Ligularia Japonica* LESS ..... M. TADA, Y. MORIYAMA, Y. TANAHASHI, and T. TAKAHASHI 1999

Codimerization of Butadiene and Ethylene Catalyzed by σ-Arylnickel(II) Compound in the Presence of Boron Trifluoride Etherate ..... N. KAWATA, K. MARUYA, T. MIZOROKI, and A. OZAKI 2003

Telomerization of Ethylene with Chloroform Initiated by *N*-Chloroalkylamines ..... T. ASAHARA, M. SENŌ, and N. OHTANI 2007

Application of Chemical Reactions on Thin-layer Chromatoplates. IV. Triterpenes ..... A. M. OSMAN, M. E. YOUNES, and F. M. ATA 2056

Furano Compounds. XXII ..... M. K. RAO and S. RAJAGOPAL 2059

NOTES:

The Mass Spectra of Heteroaromatics. II. Mass-spectral Fragmentation of 5-Nitro-2-furohydrazide Imide and Its N^2-Acyl Compounds ..... Y. KATO 2073

Derivatives of Cyclic Disulfides. III. A New Method of Deoxygenation of Thiosulfinates and Thiolsulfonates with Inorganic Cyanide ..... S. TAMAGAKI, H. HIROTA, and S. OAE 2075

Preparation and Structures of Unsubstituted and Monofluorinated 2*H*(or 4*H*)-1,3,4-Benzoxadiazines ..... P. W. CHOW and N. ISHIKAWA 2079

The Reductive Amination of *d*-Camphor with the Methylamine and Carbon-13 NMR of the Reaction Products ..... S. KIYOOKA and K. SUZUKI 2081

^{13}C Nuclear Magnetic Resonance Spectra of Unsymmetrical Naphthyridines ..... M. HIROTA, H. MASUDA, Y. HAMADA, and I. TAKEUCHI 2083

Applied

Autoxidation of Isobutyraldehyde ..... S. MIYAJIMA, T. INUKAI, H. HARADA, R. YOSHIZAWA, T. HIRAI, K. MATSUNAGA, and M. HARADA 2051

No. 9

General and Physical

Thermal Decay of the Colored Form in Photochromism of 2-Hydroxy-4-methoxytriphenylmethanol in *n*-Hexane ..... S. HAMAI and H. KOKUBUN 2085

The Catalytic Activity of AgX-type Zeolite for the Isomerization of 1-Butene ..... H. SUGIHARA, L. Y. CHEN, and I. YASUMORI 2089

Formation and Collapse of Mixed Monolayers of Trilaurin with Cholesterol and with Tristearin ..... M. NAKAGAKI and N. FUNASAKI 2094

Mechanism of Charge-transfer Polymerization. X. Flash Photolysis of the *N*-Vinylcarbazole–Pyromellitic Dianhydride System ..... Y. SHIROTA, T. TOMIKAWA, T. NOGAMI, K. TADA, N. YAMAMOTO, H. TSUBOMURA, and H. MIKAWA 2099

Charge-transfer Interaction and Chemical Reaction. V. Reaction of *o*-Phenylenediamine with Chloranil ..... T. NOGAMI, T. HISHIDA, Y. SHIROTA, H. MIKAWA, and S. NAGAKURA 2103

Porous Structure Formed by the Decomposition of the Surface Product on ZnO Preserved in the Atmosphere ..... M. NAGAO, K. MORISHIGE, T. TAKESHITA, and T. MORIMOTO 2107

Resonance Raman Spectra of Acid-Base Indicators. II. Hydroxyarylazobenzene Derivatives ..... Y. SAITO, B. KIM, K. MACHIDA, and T. UNO 2111

Interaction between Electron Donor and Acceptor: MINDO/2 Calculations on the Ammonia–I_2, Benzene–I_2, and Benzene–TCNE Systems ..... T. OHTA, T. FUJIKAWA, and H. KURODA 2115

ESR Study on Fluorescein Semiquinone Radical ..... S. NIIZUMA, Y. SATO, S. KONISHI, and H. KOKUBUN 2121

A New Condensed Gas Calorimeter. Thermodynamic Properties of Solid and Liquid Dinitrogen Oxide ..... T. ATAKE and H. CHIHARA 2126

Magnetic Property and Electronic Structure of Tris (2,2′-bipyridine) Complexes of Manganese in Low Oxidation States ..... M. INOUE, K. HARA, T. HORIBA, and M. KUBO 2137

The Estimation of Rate Constants in Systems of Linear and Nonlinear Differential Equations Using the Polynomial-approximated Least Squares-error and Iterative Search Technique ..... K. Ohkubo, H. Sakamoto, and K. Tsuchihashi 2141

The Crystal Structure of the 2: 1 Complex of Pyromellitic Dianhydride with *trans*-4-Methylstilbene ..... T. Kodama and S. Kumakura 2146

The Protonation of the TCNQ Anion Radical by Hydrogen Chloride ..... A. Yamagishi and M. Sakamoto 2152

The Mechanism for the Sulfonation of Olefins with a Sulfur Trioxide–Dioxane Complex ..... M. Nagayama, O. Okumura, S. Noda, H. Mandai, and A. Mori 2158

A Study of the Recoil Labeling of Fluothane with ^{82}Br during Neutron Irradiation ..... H. Kudo, T. Mogi, and K. Hoizumi 2162

A Shock-tube Investigation of Ignition in Ethylene–Oxygen–Argon Mixtures ..... Y. Hidaka, T. Kataoka, and M. Suga 2166

The Temperature Dependence of the *G*-Values of Nitrogen from the Gas-phase γ-Radiolysis of C_3 Hydrocarbons in the Presence of Nitrous Oxide ..... K. Okazaki, R. Yugeta, K. Kowari, and S. Sato 2171

The Estimation of the *G*-Values for the Ionization and Excitation of Noble Gases Irradiated by 100 keV Electrons ..... S. Sato, K. Okazaki, and S. Ohno 2174

Linear Free Energy Relationships in Heterogeneous Catalysis. XII. Interpretation of the Catalytic Activity of Decomposition of Hydrogen Peroxide over Nickel Oxide on the Basis of Oxidation Power Distribution ..... T. Uchijima and Y. Yoneda 2181

Interactions of 1-Substituted 2,4-Dinitrobenzenes with Methoxide and Hydroxide Ions in Dimethyl Sulfoxide with a Rapid Scan Spectrophotometer ..... Y. Hasegawa 2186

Thermochemical Studies on Platinum-Olefin Complexes. I. ..... M. Senō, K. Iwamoto, and T. Asahara 2189

Heat Capacity of Nematogenic *N*-*p*-Ethoxybenzylidene-*p'*-butylaniline between 14 and 375 K ..... M. Sorai, T. Nakamura, and S. Seki 2192

Dielectric Studies of *ortho*- and *para*- Bromoanisoles and *β*-Bromophenetole in the Liquid State ..... A. Ghatak, A. Das, and S. K. Roy 2315

Notes:

Dye Sensitized Photo-oxidation of Diphenylamine ..... W. R. Bansal, S. Puri, and K. S. Sidhu 2319

The Crystal and Molecular Structure of Dimeric[3-(salicylideneamino)-1-propanolato(2−)]copper(II) ..... P. J. Nassiff, E. R. Boyko, and L. D. Thompson 2321

Reaction of Methylcyclopentane and *n*-Hexane over Evaporated Platinum Film Catalysts ..... J. R. Anderson and K. Shimomura 2327

Adsorption of Aniline Derivatives on Platinum Electrode in Aqueous Alkaline Solution ..... Y. Matsuda, Y. Ishikawa, and H. Tamura 2329

The Dissociation of Carbon Monoxide in an Induction-coupled Argon Plasma Jet ..... Y. Nishimura, T. Takenouchi, and W. Sakai 2331

The Crystal Structure of Tetraiodo-*p*-benzoquinone ..... H. Kobayashi, T. Danno, and I. Shirotani 2333

The Photosensitized Isomerization of 2-Butenes by Sensitizers Adsorbed on Porous Vycor Glass ..... K. Otsuka and A. Morikawa 2335

The Molecular Structure of Boron Triiodide as Determined by Gas Electron Diffraction ..... H. Kakubari, S. Konaka, and M. Kimura 2337

Simple Mechanical Model Calculations of the Elastic Constants and Normal Frequencies of the $NaNO_2$ Crystal ..... A. Yamamoto, Y. Shiro, and H. Murata 2339

Analytical and Inorganic

An X-Ray Diffraction Study of the Structure of Hydrated Copper(II) Ion in a Copper(II) Perchlorate Solution ..... H. Ohtaki and M. Maeda 2197

Kinetics of Multidentate Ligand Substitution Reactions. XVII. Substitution Reactions of Diethylenetriaminepentaacetate (DTPA) with Aminopolycarboxylate Complexes of Nickel(II) and Cobalt(II) .... M. Kodama 2200

Differential Thermal Analysis of Some Tervalent Metal Chelates of 1,5-Dialkylpentane-2,4-dionates ..... I. Yoshida, H. Kobayashi, and K. Ueno 2203

ESR Studies of the Triplet State Dimers of the Salicylaldehyde Schiff Base Complexes of Copper(II) in Toluene and in Chloroform ..... M. Chikira, H. Yokoi, and T. Isobe 2208

The Chemistry of Protactinium. XI. A Study of the Solvent Extraction of Protactinium(IV) Reduced with Europium(II) from a Perchloric Acid Solution, Using Thenoyltrifluoroacetone as the Extractant..... I. Kawasuji, A. Sato, and S. Suzuki 2213

X-Ray Diffraction Studies of Aqueous Solutions of Cadmium Perchlorate and Sodium Tetraiodocadmate..... H. Ohtaki, M. Maeda, and S. Ito 2217

Polarographic Study of Catalytic Reduction of Tris(2,2′-bipyridine)copper(II) in the Presence of Nitrite Ion.. K. Tanaka and K. Nakano 2222

Formation of Cubic Molybdenum Carbide by the Carbonization of MoO_3 with Plasma Arc and Properties of the Products..... O. Matsumoto, M. Saito, and T. Yoshino 2226

An X-Ray Investigation of the Structures of the Tetrachloro- and Tetrabromoaurate(III) Ions in Aqueous Solution..... M. Maeda, H. Ohtaki, and G. Johansson 2229

Atomic Absorption Spectrophotometric Determination of Rare Earths (Y, Eu, Gd, Dy, Ho, and Er) in Single Crystals of Magnetic Garnets and Sulfides..... K. Ametani 2238

Note:

Mössbauer Spectroscopic Studies of Iron(II) and Iron(III) 1-Nitroso-2-naphtholate Complexes..... M. Takada and H. Sano 2341

Organic and Biological

The Effect of Pressure on the Diels-Alder Reaction..... K. Seguchi, A. Sera, and K. Maruyama 2242

Reaction of Sulfilimine and Sulfonium Ylide with Hydroxide or Methoxide Ion in Methanol..... N. Furukawa, T. Masuda, M. Yakushiji, and S. Oae 2247

The Ionic Reaction in the Chlorophosphonation of Alkylbenzenes.. T. Okada, Y. Okamoto, and H. Sakurai 2251

Photochemical Reactions of Some 1-Aryl-1,2-propanediones..... Y. Ogata and K. Takagi 2255

Nitration of Decamethylbiphenyl and 2,3,4,5,6-Pentamethyl-2′,3′,4′,5′,6′-pentachlorobiphenyl with Fuming Nitric Acid. Exclusive *Ortho* Orientation for the Side-chain Attack.. H. Suzuki, O. Yagiu, and T. Hanafusa 2260

Aromatic Nucleophilic Substitution. III. Meisenheimer Complexes in the Reactions of 1-(*N*,*N*-Dialkylamino)-2,4-dinitronaphthalenes with Sodium Methoxide..... S. Sekiguchi, K. Shinozaki, T. Hirose, K. Matsui, and K. Sekine 2264

Base-induced Reactions of 2-Substituted 2-Bromodimedones..... T. Wakui, Y. Otsuji, and E. Imoto 2267

p-(3,4-Diphenyl-1,3-cyclopentadien-1-yl)phenyltropylium Perchlorate. An Intermediate in the Synthesis of [5.6.7]Quinarene System..... K. Takahashi, S. Takenaka, Y. Kikuchi, K. Takase, and T. Nozoe 2272

Studies on Cyclic Dipeptides. II. Isomerization among *cyclo*(-4-Hydroxyprolyl-4-hydroxyprolyl-)s and a Novel Conversion of D-*allo*-Hydroxyproline to L-Hydroxyproline..... C. Eguchi and A. Kakuta 2277

A Photochemical Reaction of Lupan-3-one..... H. Hirota, T. Tsuyuki, Y. Tanahashi, and T. Takahashi 2283

Sulfur-containing Polymers. XIII. The Synthesis and Properties of Soluble Polydithiocarbamates..... N. Kobayashi, A. Osawa, and T. Fujisawa 2287

Chemical Studies on Tuberactinomycin. VII. Synthesis of γ-Hydroxy-β-lysine..... T. Wakamiya, T. Teshima, I. Kubota, T. Shiba, and T. Kaneko 2292

Nucleosides. XXI. Preparative Routes to Nucleosides Derived from 4-Amino-4-deoxy-β-D-glucopyranose..... F. W. Lichtenthaler, P. Voss, and G. Bambach 2297

Nucleosides. XXII. Pyrimidine Nucleosides of 4-Amino-4-deoxy-β-D-galactopyranose..... F. W. Lichtenthaler, T. Ueno, and P. Voss 2304

Conformational Analysis about N–N Bond by NMR Spectroscopy: *N*′-Sulphonyl Derivatives of *N*-Aminoimides of Anthracene-Citraconic Anhydride and Naphthalene-Maleic Anhydride Adducts..... S. M. Verma, O. S. Rao, and K. O. P. Sinha 2311

Notes:

The Mechanism of the Reduction of Tosylhydrazones with B_2H_6 and with $NaBH_4$ in Aprotic Solvents..... S. Cacchi, L. Caglioti, and G. Paolucci 2323

Stereochemistry of Ionic Thiol Addition to Acetylenic Ketones..... M. T. Omar and M. N. Basyouni 2325

The Conversion Reaction of Alkali 4-Hydroxyisophthalates into Hydroxybenzoic Acids..... K. Ota 2343

The Syntheses of Methoxylated Aromatic Carotenoids..... N. Okukado 2345

Organic Photochemical Reactions. XXII. The Photoaddition of Methyl Pyruvate to Methyl-substituted Olefins..... K. Shima, T. Kawamura, and K. Tanabe 2347

Functionalization of *trans*-Decalin. I. Synthesis of 1-Oxo-*trans*-decalin-4a,6-carbolactone ..... S. Torii, T. Kunitomi, and T. Okamoto 2349

The Diazo-coupling Reaction of Phenol in Organic Solvents. The Isomer Ratio ..... H. Yamada, Y. Hashida, S. Sekiguchi, and K. Matsui 2351

No. 10

General and Physical

The Isomerization of Purine Nucleosides in a Dilute Alkaline Solution ..... Y. Suzuki and S. Yatabe 2353

Alkylation of Phenols. II. The Selective Formation of Thymol from *m*-Cresol and Propylene with a γ-Alumina Catalyst ..... M. Nitta, K. Aomura, and K. Yamaguchi 2360

Reactions in the Adsorbed Layer: Hydrogenation of Acetone on Nickel Catalysts ..... H. Miyata, M. Minobe, and Y. Kubokawa 2365

The Magnetic Properties of Verdazyl Free Radicals. VI. ESR Studies of Pairs and Triads of the Symmetrical Triphenylverdazyl Radical in the 1,3,5-Triphenylbenzene Matrix ..... N. Azuma, H. Ohya-Nishiguchi, J. Yamauchi, K. Mukai and Y. Deguchi 2369

Electronic Spectra of Perylene Crystals ..... J. Tanaka, T. Kishi, and M. Tanaka 2376

Microwave Spectrum, Structure and Dipole Moment of Ethanethiol. I. *Trans* Isomer ..... M. Hayashi, H. Imaishi, and K. Kuwada 2382

The Stability of Inosine in Acid and in Alkali ..... Y. Suzuki 2469

The Reaction of α-Olefins and Epoxyalkanes with the Dimethyl Sulfide-Sulfur Trioxide Complex ..... M. Nagayama, O. Okumura, K. Yaguchi, and A. Mori 2473

Phosphorimetric Investigation of Triplet-Triplet Energy Transfer in Fluid Solution ..... T. Takemura, M. Aikawa, and H. Baba 2476

The Formation and Collapse of Mixed Monolayer of Triolein and Tricaprylin ..... M. Nakagaki and N. Funasaki 2482

X-Ray Photoelectron Spectroscopic Study of the Reaction of Evaporated Iron, Nickel, and Palladium with Nitric Oxide ..... K. Kishi and S. Ikeda 2532

Far Infrared Spectra and Internal Rotation of Ethyl Fluoride and Deuterated Species ..... H. Sugeta, Y. Adachi, and T. Miyazawa 2537

Infrared Absorption Intensities of *trans*- and *cis*-Dichloroethylene ..... K. Tanabe and S. Saëki 2545

The Polymorphism of Inosine. II. The Measurement of Solubilities in Water ..... Y. Suzuki 2549

Polymorphism of Inosine. III. The Equilibrium for the Inosine-Dimethyl Sulfoxide-Water System ..... Y. Suzuki and K. Hara 2551

The Equilibria for the Inosine-Calcium Hydroxide-Water and Inosine-Strontium Hydroxide-Water Systems ..... Y. Suzuki and Y. Nomura 2553

A Study of the Inosine-Sodium Hydroxide-Water and Inosine-Potassium Hydroxide-Water Systems ..... Y. Suzuki and T. Toki 2556

The Thermodynamic Properties of Tetraalkylammonium Halides in Acetone ..... M. Imura, H. Nomura, F. Kawaizumi and Y. Miyahara 2559

Photoelectron Spectra of Substituted Benzenes ..... T. Kobayashi and S. Nagakura 2563

Formation of Long-Lived Highly-Excited States of H, C, and N Atoms by Low-Energy Electron Impact on CH_3CN ..... T. Shibata, T. Fukuyama, and K. Kuchitsu 2573

Spectroscopic Studies on Some Ketimines ..... R. Abu-Eittah and M. M. Hamed 2576

Polarographic Behavior of Glycol Dimercaptoacetate ..... R. S. Saxena and S. K. Bhatia 2580

Notes:

Ionization Potentials of Radicals as Determined by the Unrestricted MINDO/2 Method ..... H. Ichikawa and M. Ogata 2591

Blue-colored Matter Appearing in an Alkaline Solution of Benzoin and Benzil in Aqueous Dimethyl Sulfoxide ..... T. Abe and M. Iwaizumi 2593

Isomerization of 2-Pinene over Monohydrates of Metal Sulfates..R. Ohnishi, A. Matsui, and K. Tanabe 2595
The Basic Compound Produced in the γ-Radiolysis of Liquid Nitrogen Containing Hydrocarbons .....K. Ishizaki and S. Sato 2597
ESR Spectra of Radicals during Photolysis of Chloranil in Solutions .....H. Yoshida, Y. Kambara, and B. Rånby 2599
The Crystal Structure of *dl*-Bi-1,4-dioxanyl .....A. Furusaki, S. Misumi, and T. Matsumoto 2601
Electron Pairing Interaction and Electronic Spectra of Linear Polyene .....S. Basu 2618

Analytical and Inorganic

The Ion-exchange Behavior of some Cations on Crystalline Zirconium Phosphate .....Y. Hasegawa and I. Tomita 2389
Metal Complexes of Amino Acids. VI. μ-L-Aspartato and μ-L-Glutamato Complexes of Cobalt(III) .... T. Yasui, H. Kawaguchi, Z. Kanda, and T. Ama 2393
Fourier Analysis of AC Polarography. Elimination of Non-Faradaic Effects and Determination of Kinetic Parameters for Cd(II)-Na_2SO_4 System.....M. Hirota, Y. Umezawa, H. Kojima, and S. Fujiwara 2486
A Polarographic Study of the Dissociation Reactions of the Ethylenediaminemonoacetatocobalt(II) (Co(II)-EDMA) and Ethylenediaminediacetatonickel(II) (Ni(II)-EDDA) Complexes .....M. Kodama 2490
Glass Formation in Multicomponent Phosphate Systems Containing TiO_2 .....A. Kishioka, M. Haba, and M. Amagasa 2493
Properties and Configuration of Manganese(II), Cobalt(II), Nickel(II), Copper(II) and Zinc(II) Chelates of Acetoacetylferrocene.....H. Imai and T. Ota 2497
Solvent Extraction Studies of the Hydrolysis of Antimony(III) in Tracer Concentrations ..... H. Shoji, H. Mabuchi, and N. Saito 2502

Notes:

A Study on the Hydrolysis of Cadmium Ion in Aqueous 3M (Li)ClO_4 Solution ..... H. Matsui and H. Ohtaki 2603
Phase Diagrams of the Binary Systems of Some Metal β-Diketonates .....I. Yoshida, H. Kobayashi, and K. Ueno 2605

Organic and Biological

Layered Compounds. XVIII. Synthesis of a Paracyclophane Containing the 1,2,3,4,5-Hexapentaene Group and the Stereochemistry of Its Formation ..... T. Negi, T. Kaneda, H. Mizuno, T. Toyoda, Y. Sakata, and S. Misumi 2398
Reaction of Chlorohydrocarbons. VI. Co-pyrolysis of Chloroethanes and Methanol on Activated Alumina ..... K. Shinoda 2406
Effects of Substituents on the Formation of Acetals of 4-Substituted 1,3-Indandiones .....K. Sakane, Y. Otsuji, and E. Imoto 2410
Restricted Rotation Involving the Tetrahedral Carbon. X. Barriers to Rotation of Methyl Groups in 9-Methyltriptycene Derivatives.....M. Nakamura, M. Ōki, H. Nakanishi, and O. Yamamoto 2415
Reactivity of *exo*- and *endo*-Tricyclo[3.2.1.$0^{2,4}$]octan-8-ylidenes and 7-Norbornenylidene .....S. Murahashi, K. Okumura, Y. Maeda, A. Sonoda, and I. Moritani 2420
The One-electron Reduction of Carbonium Ions. VII. A Kinetic Study of the Reduction of the Bryl- and *n*-Alkyl-substituted Tropylium Ions with Cr(II) ..... K. Okamoto, K. Komatsu, M. Fujimori, and S. Yasuda 2426
The One-electron Reduction of Carbonium Ions. VIII. The Reducibility of Hetero-substituted Tropylium Ions as Measured by the Competitive Reduction Method with Zinc Powder ..... K. Okamoto, K. Komatsu, and O. Sakaguchi 2431
Synthetic Photochemistry. IV. The Reaction of Betaines with Singlet Oxygen ..... H. Takeshita, A. Mori, and S. Ohta 2437
Chemistry of α-Haloaldehyde. VI. Reaction of 2-Chloro-2-methylpropanal with Benzoylacetonitrile in the Presence of Potassium Carbonate .....A. Takeda, S. Tsuboi, and T. Sakai 2440
Reactions of Aryliminotriphenylphosphoranes with Sulfenes.....T. Kawashima and N. Inamoto 2444
Metal Phosphinylides and Phosphinothioylides. I. Formation of Metal Diphenylphosphinylides and Diphenylphosphinothioylides and the Reactions with Some Organic Halides and Aldehydes .....T. Emoto, H. Gomi, M. Yoshifuji, R. Okazaki, and N. Inamoto 2449

Metal Phosphinylides and Phosphinothioylides. II. Effects of Metals on the Reactions of $[Ph_2PX]M$ with Benzaldehyde and *p*-Benzoquinone ..... K. Goda, H. Gomi, M. Yoshifuji, and N. Inamoto 2453
Anomeric Effect in Sulfur Heterocycles Carrying Sulfur Substituents ..... M. Ōki, T. Sugawara, and H. Iwamura 2457
Intramolecular Hydrogen Bonding and Conformations of α,α-Dialkyl- and α-Alkyl-*o*-methoxybenzyl Alcohols ..... A. Yamashita, K. Hara, S. Aizawa, and M. Hirota 2508
Reactions of Organoboranes with Ferric Chloride and Thiocyanate. Convenient Syntheses of Alkyl Chlorides and Thiocyanates from Olefins *via* Hydroboration ..... A. Arase, Y. Masuda, and A. Suzuki 2511
Preparation of 1,7-Disubstituted Indan Derivatives and Their Application to the Synthesis of Tricyclic Heterocyclic Compounds ..... K. Sakane, S. Oda, E. Haruki, Y. Otsuji, and E. Imoto 2515
A New Synthesis of 3-Alkyl-2-hydroxy-2-cyclohexen-1-ones ..... K. Sato, S. Inoue, and M. Ōhashi 2519
The Amination and Dimerization of Norbornadiene with Nickel, Palladium, and Rhodium Complexes ..... J. Kiji, S. Nishimura, S. Yoshikawa, E. Sasakawa, and J. Furukawa 2523
A New Method of Preparing Flavones ..... A. Kasahara, T. Izumi, and M. Ooshima 2526
A New Synthesis of α,β-Unsaturated Carboxylic Esters. The Condensation of Ethyl Lithiotrimethylsilylacetate with Carbonyl Compounds ..... H. Taguchi, K. Shimoji, H. Yamamoto, and H. Nozaki 2529
The Chemistry of α,*N*-Hydroxyamino Acids ..... A. Ahmad 2583
Application of Chemical Reactions on Thin-Layer Chromatoplates. III. Monoterpenes ..... M. E. Younes and A. Mokhtar 2588

Notes:

O–H Stretching Absorption and Conformation of the β-Methyl Derivatives of 1-Tetralol, 4-Chromanol, 4-Thiochromanol, and 4-Thiochromanol 1,1-Dioxide ..... K. Hanaya, S. Onodera, and H. Kudo 2607
The Photoinduced Substitution Reaction of 4-Quinolinecarbonitrile ..... N. Hata, I. Ono, and H. Suzuki 2609
The Determination of Ruthenium in a Sulfuric Acid Solution by Atomic Absorption Spectrophotometry ..... R. Iwata and I. Ogata 2611
Synthesis of 2,3,6-Trimethylbenzyl Alcohol ..... T. Kawai, Y. Yamazaki and S. Yuhashi 2613
The Photochemistry of 3,3-Dialkoxy-1-phenylpropan-1-ones ..... T. Nishio and H. Aoyama 2615
The Stereoselective Reduction of Tropinone to Tropine ..... Y. Hayakawa and R. Noyori 2617
Photochemistry of Acetophenone and Acetaldehyde in Ether Solvent—Formation of Diastereoisomeric Alcohols ..... M. Tokuda, M. Hasegawa, A. Suzuki, and M. Itoh 2619
The Preparation of 3,5-Dichloro-2,4,6-trifluorophenyl(cyclopentadienyl)dicarbonyliron and Its Derivatives ..... N. Ishikawa and S. Ibuki 2621
Determination of Conformations of Esters with the Use of Lanthanide Shift Reagents ..... K. Sakamoto and M. Ōki 2623
Reaction of Polymethylbenzyl Cyanides with Fuming Nitric Acid. A New Route to Polysubstituted 3-Isochromanone Synthesis ..... H. Suzuki and T. Hanafusa 2625
The Preparation of 1,5-Diaryl-3-phenylsulfonylformazans from Phenylsulfonylacetarylamides and Their Arylazo Derivatives ..... A. S. Shawali and A. L. Elansari 2627
ESR Study of γ-Irradiated Silk : Effect of Oxygen ..... H. Yoshioka, N. Koide, and F. Higashide 2629

Applied

Die Rolle des Oxydationseffekts bei der Lithentwicklung ..... T. Suga 2463
The Methylation of Phenol and the Decomposition of Methanol on ZnO–Fe_2O_3 Catalyst ..... T. Kotanigawa 2466

No. 11

General and Physical

The Photoionization of Molecular and Crystalline Anthracene ..... J. Aihara and H. Inokuchi 2631
Effect of Alcohols on the Micelle Formation of Nonionic Surfactants in Aqueous Solutions ..... N. Nishikido, Y. Moroi, H. Uehara, and R. Matuura 2634

An Ultrasonic Method for Determination of the Volume Change Due to Internal Rotation in 1,2-Dichloroethane ..... M. Aoi and K. Arakawa 2639

Isotope Effects in the Reactions of ^{80}Br Activated by Isomeric Transition with Various Deuterated Propanes ..... E. Tachikawa and K. Numakura 2749

Determination of the *gauche* Dihedral Angle and the Energy Difference between Rotational Isomers of Bromoacetyl Chloride ..... K. Tanabe and S. Saëki 2754

The Crystal and Molecular Structure of Arabinofuranosyladenine Hydrochloride ..... T. Hata, S. Sato, M. Kaneko, B. Shimizu, and C. Tamura 2758

The Surface Activity of Tetra-*n*-alkylammonium Halides in Aqueous Solutions. The Effect of Hydrophobic Hydration ..... K. Tamaki 2764

Quenching of Excited Mercury Atoms (6^3P_1 and 6^3P_0) in Molecular Collisions ..... H. Horiguchi and S. Tsuchiya 2768

Contribution of d Orbitals in SiH, SiH_2, SiH_3, and SiH_4 ..... J. Higuchi, S. Kubota, T. Kumamoto, and I. Tokue 2775

Nuclear Magnetic Resonance Study of the Kinetics of Ligand Exchange on the Oxovanadium(IV)-malonato Complex ..... H. Tomiyasu, S. Ito, and S. Tagami 2843

Hydrogen Redistribution of Acetone on ZnO Catalysts ..... K. Nagai, K. Tanaka, and K. Miyahara 2847

Kinetic Studies on the Selenization of Silver ..... J. Mizusaki, K. Fueki, and T. Mukaibo 2851

Notes:

A Solvated Electron Formed from the Water by the Irradiation of the Recoil Particles of ^{10}B(n,α)^{7}Li and ^{6}Li(n,α)T ..... A. Yokohata and S. Tsuda 2869

MCNDO/2 Calculation of the Radiative Lifetimes of the Triplet States of the Nucleic Acid Bases ..... M. Kamiya and Y. Akahori 2871

Charge-transfer and Proton-transfer in the Formation of Molecular Complexes. X. Picric Acid Complexes with 2,5-Dichloroaniline ..... Y. Matsunaga, G. Saito, and N. Sakai 2873

A Mössbauer Study of the Valence States of ^{119}Sn after the EC Decay of ^{119}Sb in Antimony and Tellurium Iodides ..... F. Ambe and S. Ambe 2875

Heat of Evaporation of Polyoxyethylene Dodecyl Ethers ..... M. Nakamura, K. Eda, and K. Kosiyama 2877

The Dipole Moment of Benzaldehyde ..... Y. Kawashima and K. Kozima 2879

The ESR of Alkyl Phenyl Nitroxide Radicals Studied as Hindered Rotation ..... T. Nishikawa and K. Someno 2881

Field Ionization of Highly-excited Helium and Hydrogen Atoms Produced by Electron Impact ..... T. Shibata, T. Fukuyama, and K. Kuchitsu 2883

Analytical and Inorganic

The Circular Dichroism and Magnetic Circular Dichroism Spectra of Bis(stilbenediamine)nickel(II) Complexes ..... S. Arakawa, T. Nozawa, and M. Hatano 2643

The Solubility Study of Ion-pairs in Organic Solvents ..... T. Takamatsu 2647

The Electrochemical Reduction of Purine in Nonaqueous Solvents ..... T. Yao and S. Musha 2650

The Equilibria of Protonation Reaction of *N,N'*-Ethylenebis(salycylideneiminato)cobalt(II) and of Its Oxygenated Binuclear Complex by Perchloric Acid in Dimethyl Sulfoxide ..... Y. Abe and G. Wada 2655

Polarographic Investigation of Dissolved Oxygen in Nonaqueous Solvent ..... T. Fujinaga and S. Sakura 2781

Characterization of the Oxalato Complex of Manganese(IV) ..... Y. Yoshino, I. Taminaga, M. Kokiso, and T. Uehiro 2787

Reactions of π-Allylic Palladium(II) Complexes of Acetoacetate Esters with Pyridine and Its Derivatives ..... S. Baba, T. Sobata, T. Ogura, and S. Kawaguchi 2792

Stereoselectivity in the Formation of Oxalato-L-aspartatoethylenediaminecobalt(III) Complex ..... M. Takeuchi and M. Shibata 2797

Metal Complexes of Amino Acids. V. μ-Aminocarboxylato Bi- and Tri-nuclear Complexes of Cobalt(III) ..... T. Yasui, T. Ama, H. Morio, M. Okabayashi, and Y. Shimura 2801

Synthesis of Chelating Agents. XI. Synthesis and Chelating Behavior of Diaxial *trans*-Decahydronaphthylene-*trans*-2,3-binitrilotetraacetic Acid ..... T. Yano, H. Kobayashi, and K. Ueno 2806

Kinetics of Ligand Isotopic Exchange of Tris(acetylacetonato)gallium(III) and Related β-Diketonato Complexes in Tetrahydrofuran ..... C. Chatterjee, K. Matsuzawa, H. Kido, and K. Saito 2809

Determination of the Optical Purity of Amino Acids by Complex Formation. Determination of Optimum Condition for Rotational Measurement ..... Y. Fujii 2856

The Selectivity Evaluation of an Ion-selective Electrode with a Liquid Membrane by Electrode Response to a Foreign Ion ..... A. Jyo, M. Torikai, and N. Ishibashi 2862

Notes:

The Properties of the Liquid Nitron Nitrate Membrane Electrode ..... A. Tateda and H. Murakami 2885

Binuclear Copper(II) Propionate Complexes with *N*-Arylsalicylideneamines ..... T. Tokii, S. Emori, and Y. Muto 2887

Synthesis of Chelating Agents. XII. Chelating Behavior of 3,3-Dimethylbutane-1,2-diamino-*N*,*N*,*N*′,*N*′-tetraacetic Acid with Some Alkaline Earth Metals ..... T. Yano, Y. Yanagihara, H. Kobayashi, and K. Ueno 2889

The Spectrophotometric Determination of Boron in Condensed Water from Fumaroles ..... A. Isozaki and S. Utsumi 2891

Organic and Biological

The Photochemical Reaction of Benzofuran Derivatives with Benzophenone or Benzaldehyde ..... Y. Kawase, S. Yamaguchi, H. Ochiai, and H. Horita 2660

Acetoxythallation of Acetylenes and the Proto- and Halogenodethallation of the Products ..... S. Uemura, H. Tara, M. Okano, and K. Ichikawa 2663

Synthesis of N^{ε}-Hydroxy-L-lysine ..... Y. Isowa and M. Ohmori 2672

Studies of Acyl and Thioacyl Isocyanates. XIV. The Reactions of Benzoyl and Thiobenzoyl Isocyanates with Hydrazones ..... O. Tsuge and S. Kanemasa 2676

The Crystal and Molecular Structure of Tyramine Hydrochloride ..... K. Tamura, A. Wakahara, T. Fujiwara, and K. Tomita 2682

An Inversion of Configuration of Threonine and Allothreonine in the *N*,*O*-Acyl Migration Reaction with Concentrated Sulfuric Acid ..... T. Wakamiya, Y. Tarumi, and T. Shiba 2686

Synthesis of Streptolidine (Roseonine, Geamine) ..... S. Kusumoto, S. Tsuji, and T. Shiba 2690

Enthalpies of Hydrogen Bond Formation between Diphenylamines and Dimethyl Sulfoxide ..... M. Hirota, K. Shinozuka, and Y. Hamada 2696

Superacids and Their Derivatives. V. Kinetics and Mechanism of the Cationic Polymerization of 3,3-Bis(chloromethyl)oxacyclobutane Initiated by Ethyl Trifluoromethanesulfonate. Evidence for Ester Type Propagating Species ..... S. Kobayashi, H. Danda, and T. Saegusa 2699

Superacids and Their Derivatives. VI. Kinetics of the Cationic Ring-Opening Polymerization of Tetrahydrofuran Initiated by Ethyl 2,4,6-Trinitrobenzenesulfonate ..... S. Kobayashi, T. Nakagawa, H. Danda, and T. Saegusa 2706

Preparation of Diethylaluminium Chelates, $R_2P(S)–X–AlEt_2$(X=NMe, S) and Some Reactions with Carbonyl Compounds ..... K. Urata, T. Yogo, K. Itoh, and Y. Ishii 2709

Studies of the Reactions of Amines with Sulfur Trioxide. IV. One-step Synthesis of *N*-Substituted Imidobissulfates from Amines ..... F. Kanetani and H. Yamaguchi 2713

The Reactions of β-Hydroxychalcones and 2-Acetoxy-1,3-diarylpropan-1,3-diones with Lead Tetraacetate ..... K. Kurosawa and A. Moriyama 2717

Synthesis of Sequential Polypeptides of L-Leucine and Glycine ..... T. Iio and S. Takahashi 2720

The Synthesis of 1,3,4-Benzotriazepin-5-one Derivatives from Isatoic Anhydrides ..... M. Takahashi, S. Onizawa, and T. Satoh 2724

The Synthesis and Oxidation of 4-(*N*-Arylmethylideneamino)-2,6-di-*t*-butylphenols ..... E. Manda 2727

Fragmentations in Doubly Charged Ion Mass Spectra of Aromatic Carbonyl Compounds ..... H. Sakurai, A. Tatematsu, and H. Nakata 2731

Reaction of Group IV Organometallic Compounds. XXXI. The Reaction of *N*-Trimethylsilyl- and -stannyl(diphenylmethylene)amine with Diketene ..... H. Suzuki, I. Matsuda, K. Itoh, and Y. Ishii 2736

Hetera-*p*-carbophanes. IV. The Effect of Rigidity on the Chemical Shifts of Protons in Ansa Chains and Barriers to Rotation of Dioxadioxo[*n*]paracyclophanes ..... K. Sakamoto and M. Ōki 2739

The Reaction of Alkyl Halides with Mercuric Thiocyanate ..... N. Watanabe, M. Okano, and S. Uemura 2745

Ringspaltungsreaktion von Thiadiazolo- und Triazolopyrimidin-Derivaten ..... T. Okabe, E. Taniguchi, und K. Maekawa 2813

Alkoxythiocyanation and Alkoxyiodination of Olefins with Copper(II) Salts ..... A. Onoe, S. Uemura, and M. Okano 2818

Reactions of Methylcalcium Iodide. II. Carboxylation, Metallation, and Metal-Halogen Exchange Reactions ..... N. Kawabata, H. Yoshimura, and S. Yamashita 2822

The Thermal Reactions of Azido-1,3,5-triazines ..... R. Kayama, S. Hasunuma, S. Sekiguchi, and K. Matsui 2825

The Synthesis of 2,4-Dehydrohomoadamantane ..... R. Yamaguchi, T. Katsushima, and M. Kawanisi 2830

Photochemistry in Micellar System. I. Stabilization of the Radical Anions of Anthraquinonesulfonates ..... K. Kano and T. Matsuo 2836

Notes:

The Reaction of Biguanides and Related Compounds. XI. The Interaction of Ethylene Carbonates with Arylbiguanides and Related Compounds ..... M. Furukawa, T. Yoshida, and S. Hayashi 2893

The Syntheses of Acronycidine and 4,5,8-Trimethoxyfuro[2,3-*b*]quinoline ..... T. Sekiba 2895

The Alkylation of *m*-Cresol with Propylene by Supported Metal Sulfates ..... M. Nitta, K. Yamaguchi, and K. Aomura 2897

The Solid-State Spectra of Several Rhodizonates ..... J. Aihara 2899

Synthetic Photochemistry. V. Azulene Derivatives from the Photoadducts of Methyl Acetopyruvate with Cycloheptatriene ..... H. Takeshita and A. Mori 2901

Pyrolysis of Dialkyl 2-Acyloxyalkylphosphonates ..... Y. Okamoto, T. Kawai, and H. Sakurai 2903

Metal Phosphinylides and Phosphinothioylides. III. Reactions of Lithium Diphenylphosphinylide and Diphenylphosphinothioylide with Acetone and Bromoacetone ..... M. Yoshifuji, H. Gomi, and N. Inamoto 2905

The Reaction of Several *o*-Methoxy Aromatic Aldehydes with Ethylthioxide. Novel Substitution and Condensation ..... M. Iwata and S. Emoto 2907

The Reaction of Ethyl Azidoformate with Electron Deficient Olefins and the Thermal Ring Opening of the Resulting Aziridines ..... T. Hiyama, H. Taguchi, and H. Nozaki 2909

Optical Resolution and Configuration of *cis*-*β*-Phenylglycidic Acid ..... K. Harada and Y. Nakajima 2911

The Tautomerism of 2-Amino-5-nitrosotropone ..... K. Imafuku, Y. Takata, and H. Matsumura 2913

No. 12

General and Physical

The Application of an MC-SCF Theory to Organic Chemical Reactions ..... O. Kikuchi and K. Aoki 2915

Synthesis of Methyl Isobutyl Ketone from Acetone and Hydrogen Catalyzed by Palladium Supported on Zirconium Phosphate ..... Y. Watanabe, Y. Matsumura, Y. Izumi, and Y. Mizutani 2922

Charge-Transfer Transitions Associated with Tricyanovinyl Aromatics ..... A. Sasaki, J. Aihara, and Y. Matsunaga 2926

The Infrared Intensities of Stretching Fundamentals in Gaseous and Crystalline Cyanoacetylene ..... M. Uyemura and S. Maeda 2930

Group Interactions in Polyelectrolytes. VIII. The Amination of Chloromethylated Polystyrene with Secondary Amines and the Quaternization of the Aminated Polymer ..... H. Kawabe 2936

Effects of Pressure on Organic Reactions. VI. The Acid-catalyzed Rearrangement of Benzopinacol in Acetic Acid ..... K. Tamura and T. Moriyoshi 2942

Deuterium Isotope Effects on the Redox Decomposition of Hydroxymercurated Propene and 2-Butenes in an Aqueous Solution ..... S. Shinoda and Y. Saito 2948

Ligand-Ligand Interaction in $[Zn(1,10\text{-phenanthroline})_2(H_2O)_2](NO_3)_2$ and $[Zn(2,2'\text{-bipyridyl})_3](NO_3)_2$ ..... T. Ohno and S. Kato 2953

Kinetic Studies on Olefin Epoxidation by Peroxo Molybdenum Complex $(MoO(O_2)_2HMPT)$ ..... H. Arakawa, Y. Moro-oka, and A Ozaki 2958

Vibrational Assignments and Rotational Isomerism of Dichloroethylmethylsilane and 2,2-Dichlorobutane .. K. Ohno, Y. Shiro, and H. Murata 2962

The Crystal Structure of Dichlorobis(acetoxime)palladium Y. Kitano, K. Kobori, M. Tanimura, and Y. Kinoshita 2969

The Effect of Organic Additives on the Micelle Formation of Dodecylammonium Halides in Aqueous Solutions S. Miyagishi 2972

A Study of the Inosine-Hydrochloric Acid-Water and Inosine-Sulfuric Acid-Water Systems Y. Suzuki and T. Toki 2977

The Thermal Reaction of Hydrogen and Nitric Oxide K. Tadasa, N. Imai, and T. Inaba 2979

The Singlet-Triplet Absorption Spectra of Heterocyclic Amine *N*-Oxides. II. Pyridine *N*-Oxide Derivatives M. Yamakawa, K. Ezumi, Y. Mizuno, and T. Kubota 2982

Radiotracer Studies of the Adsorption of an Ampholytic Surfactant, *N*-Dodecyl-*β*-alanine, at the Aqueous Surface T. Okumura, A. Nakamura, K. Tajima, and T. Sasaki 2986

The Adsorption of the Aminoethyl Derivatives of Poly(vinyl alcohol) onto Bemberg Rayon Fibers M. Higuchi, T. Koyakumaru, and R. Senju 2990

Interaction between Water and Hydroxylated Surface of Silica-Alumina T. Morimoto, M. Nagao, and J. Imai 2994

Phase Transition of Solid Hexabromoethane T. Koide, M. Tsujino, K. Sawada and T. Oda 2998

Experimental Determination of Ionization Potentials of Organic Amines, *β*-Carotene and Chlorophyll a Y. Nakato, T. Chiyoda, and H. Tsubomura 3001

The Microwave Spectrum, the r_s Structure and the Dipole Moment of the *TT* Isomer of Diethyl Ether M. Hayashi and K. Kuwada 3006

Apparent Dipole Moments and Dielectric Relaxation Times of 1,4-Benzoquinone and Its Derivatives in Solutions T. Nagai, H. Takahashi, K. Higasi, L. E. Sutton, and D. Waddington 3010

Hydrate Crystals of Alkali Metal-Chloranil and -Bromanil Salte and Their Optical and Magnetic Properties S. Hiroma and H. Kuroda 3014

Notes:

ESR Study on Molecular Motion of CO_2^- Radical Adsorbed on Zeolite O. Edlund, J. Sohma, and K. Sogabe 3163

Ionic Equilibria in Micellar Solutions K. Shirahama 3165

Dissociative Electron Attachment to (Chloroethyl)benzenes in *γ*-Irradiated Organic Glassy Matrices T. Saito and H. Yoshida 3167

On the Additivity of *π*-Bond Energies in Linear Polyenes J. Aihara 3169

Analytical and Inorganic

Transition-metal Complexes of Pyrrole Pigments. X. Divalent and Trivalent Manganese Chelates of Dipyrromethenes Y. Murakami, K. Sakata, K. Harada, and Y. Matsuda 3021

Transition-metal Complexes of Pyrrole Pigments. XI. Zinc(II) Chelates of Some Dipyrromethenes Y. Murakami and K. Sakata 3025

Studies of the Substituent Effect on the Stability Constants of Bis(2-hydroxy-4-or 5-substituted acetophenonato)-copper(II) M. Haruta, Z. Yoshida, and H. Ogoshi 3029

Synthesis of Chelating Agents. X. Chelating Behavior of 1,2-Diamines with Specific Configurations: *cis*- and Diequatorial *trans*-Diamino-*trans*-decalins, *cis*- and *trans*-Diaminotetralins and 3,3-Dimethyl-1,2-diaminobutane T. Yano, H. Kobayashi, and K. Ueno 3033

ESR and Optical Absorption Studies of Various Bis(*N*-salicylidenealkylaminato)copper(II) Complexes with Tetrahedrally-distorted Coordination Geometry H. Yokoi 3037

Binuclear Metal Complexes. XI. Substituent Effect upon Magnetisms of Binuclear Oxovanadium(IV) and Copper(II) Complexes of the Schiff Bases, 2,6-Bis[*N*-(2-hydroxy-5-substituted-phenyl)iminomethyl]-4-methylphenol H. Okawa, I. Ando, and S. Kida 3041

Binuclear Metal Complexes. XIII. Syntheses and Magnetic Properties of Thiocyanato-Bridged Binuclear Copper(II) Complexes T. Ichinose, Y. Nishida, H. Okawa, and S. Kida 3045

Six-coordinate Copper(II) Complexes Derived from the Reactions of Bis(acetylacetonato)- and Bis(ethyl acetoacetato)-copper(II) with Some Bidentate Nitrogen Bases ..... T. Kurauchi, M. Matsui, Y. Nakamura, S. Ooi, S. Kawaguchi, and H. Kuroya 3049

Circular Dichroism Spectra of Cobalt(III) Complexes Containing Amino-alcohols ..... T. Nishde, K. Ogino, J. Fujita, and K. Saito 3057

A Polarographic Investigation of the Reactions between Nitrate Ions and Chromium(II)-Cyclohexanediaminetetraacetate, Chromium(II)-Trimethylenediaminetetraacetate, and Chromium(II)-*N*-(2-Hydroxyethyl)-ethylenediaminetriacetate Complexes ..... N. Tanaka, T. Kano, H. Ogino, and A. Yamada 3064

Nitrosylrhenium(^{14}NO and ^{15}NO) Complexes ..... E. Miki, K. Mizumachi, and T. Ishimori 3068

The Gas-chromatographic Behavior of Perhaloalkanes ..... R. Iwata, Y. Makide, and T. Tominaga 3071

Note:

Formation of Erbium and Holmium Mixed Complexes with Complexane and Carbonate Ion ..... T. Taketatsu 3171

Organic and Biological

Oxidation Activity and Acidity of V_2O_5-P_2O_5 Catalyst ..... M. Ai and S. Suzuki 3074

Abnormal Benzo Substituent Effect on Free Radical Formation Process. A Local Symmetry Effect ..... I. Tabushi, Z. Yoshida, and Y. Aoyama 3079

Derivatives of 1,2-Dithiole-3-thiones. VII. Study of Reaction of Thiocarbonyl *S*-Imide with Amines ..... S. Tamagaki, K. Sakaki, and S. Oae 3084

The Photochemical Reaction of 2-Alkoxy-1,4-naphthoquinones with Olefins. II. The Formation of Tetrahydropyran-ring Compounds ..... T. Otsuki 3089

Spectrophotometric Studies of the Acidities of Dichlorophene and Hexachlorophene ..... H. Inoue and N. Asaoku 3094

The Synthesis of Coenzyme Q ..... S. Inoue, R. Yamaguchi, K. Saito, and K. Sato 3098

Synthesis of Dimeric and Trimeric 2-(*p*-Tolyloxy)ethyl Acetate–Formaldehyde Polymer Model Compounds ..... A. Ninagawa, H. Matsuda, and S. Matsuda 3102

Nitration of 9,10-Dimethylanthracene and 9,10-Diethylanthracene ..... H. Suzuki, H. Yoneda, and T. Hanafusa 3106

α,β-Unsaturated Carboxylic Acid Derivatives. VI. New Synthesis of *N*-Acyl-α-dehydroamino Acid Esters ..... C. Shin, K. Nanjo, E. Ando, and J. Yoshimura 3109

Restricted Rotation Involving the Tetrahedral Carbon. XI. Barriers to Rotation and Conformational Preferences of Substituted 9-Isopropyltriptycenes ..... F. Suzuki, M. Oki, and H. Nakanishi 3114

Molybdenum(V) Chloride as a Reagent for *cis* Chlorination of Olefins ..... S. Uemura, A. Onoe, and M. Okano 3121

The Thermal Polycondensation of Glycine in the Presence of Urea ..... Y. Kōzai, Y. Ikeda, and M. Yoshida 3125

Dopaquinone and Related Compounds. The Reaction with Cyclopentadiene ..... Y. Omote and T. Komatsu 3128

Reactions of Group IV Organometallic Compounds. XXX. Stepwise Addition of Isocyanates and Isothiocyanates with *N*-Trimethylstannyl(diphenylmethylene)amine ..... H. Suzuki, K. Itoh, I. Matsuda, and Y. Ishii 3131

Synthesis of Butirosin B and Its 3′,4′-Dideoxy Derivative ..... D. Ikeda, T. Tsuchiya, S. Umezawa, and H. Umezawa 3136

Synthesis of 1-*N*-[(*S*)-4-Amino-2-hydroxybutyryl]-3′,4′-Dideoxyneamine ..... Y. Takagi, D. Ikeda, T. Tsuchiya, S. Umezawa, and H. Umezawa 3139

Reactions of Ethylene with Chloroform Initiated by Amine–Ferrous Chloride System ..... T. Asahara, M. Senō, and N. Ohtani 3142

Studies on the Synthesis of Histidine Peptides. I. N^{im}-Tosylhistidine Derivatives as Starting Materials ..... T. Fujii and S. Sakakibara 3146

Thiocarbonyl Ylides. Attempted Preparation and Related Reactions ..... S. Mitamura, M. Takaku, and H. Nozaki 3152

Synthesis and Photochemical Reaction of 1,5,5,9-Tetramethyl-2-decalone ..... T. Tatee, T. Tsuyuki, R. Aoyagi, and T. Takahashi 3158

Notes:

Oxidation of 1-Cyclohex-1-enecarbaldehyde and Related Compounds with Caro's Acid ..... M. Ito, K. Abe, H. Abe, K. Yamada, and T. Masamune 3173

Absolute Configuration of Some Chiral Cyclopropanes ..... K. Nishiyama, J. Oda, and Y. Inouye 3175

Olefin Disproportionation by Molybdenum(0) Complexes and Aluminum Halides ..... M. Hidai, T. Tatsumi, and Y. Uchida 3177

Substituent Effect in the Nucleophilic Attack by the Bromide Ion on the *p*-Tolyl-Substituted Phenyliodonium Ions ..... Y. Yamada, K. Kashima, and M. Okawara 3179

Dye-sensitized Photolysis of Diazonium Compounds in the Presence of Thioacetamide ..... E. Inoue, H. Kokado, T. Ikawa, T. Yamase, and Y. Inoue 3181